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with the co-operation of the members of the Editorial Board of the American Finance Association

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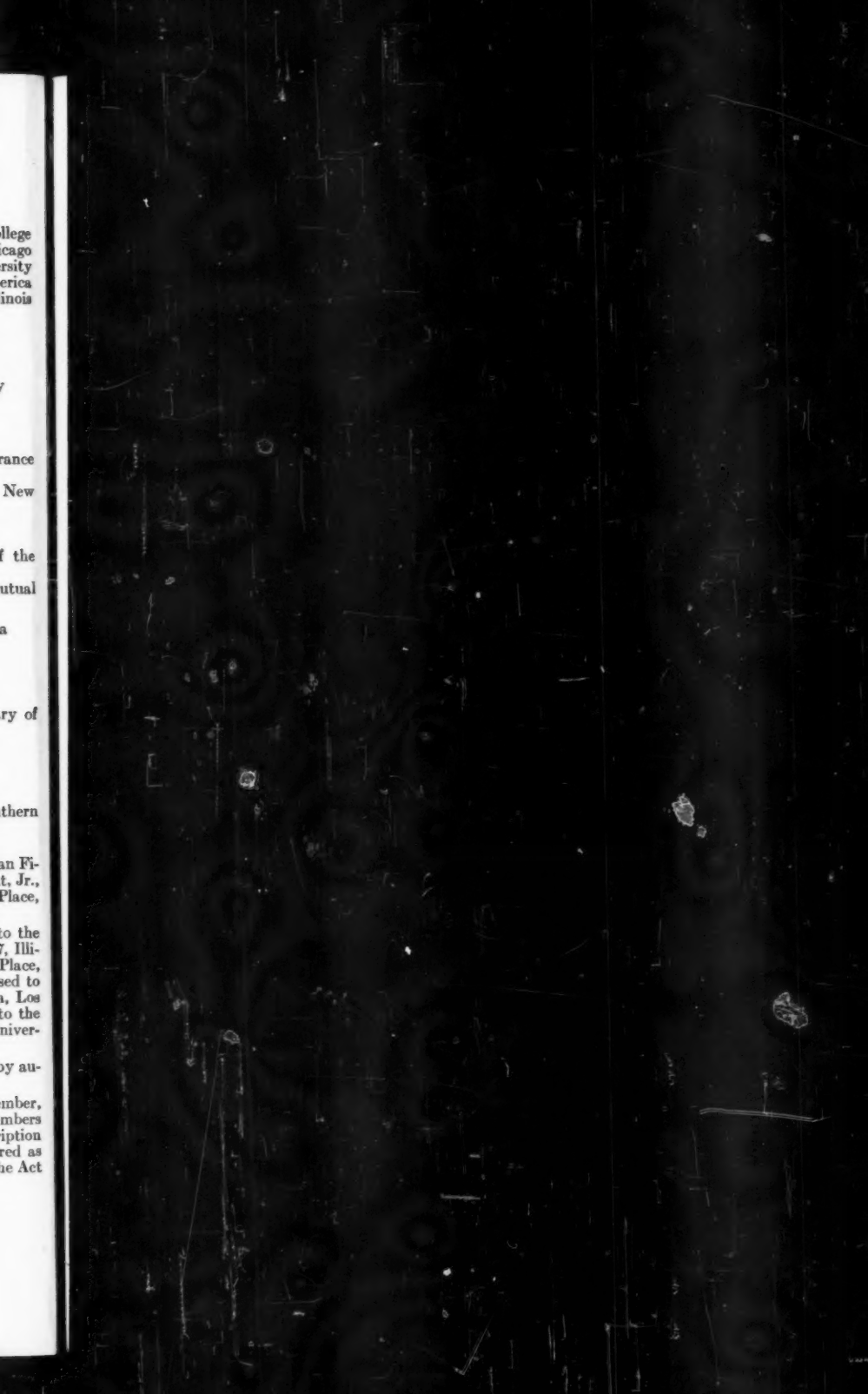

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ABOUT OUR AUTHORS

MURRAY E. POLAKOFF is associate professor of economics at the University of Texas. He has written extensively on economic development, Russian economics, economic history, and economic theory and methodology. He is currently at work on a book to be entitled *Evolution of Monetary Theory*. He holds the M.A. and Ph.D. degrees from Columbia.

DAVID DURAND is professor of industrial management at the Massachusetts Institute of Technology. He received his A.B. from Cornell University and his A.M. and Ph.D. from Columbia University. In addition to his articles in the *Journal of Finance*, his work has appeared in the *American Economic Review, Review of Economics and Statistics, Journal of the American Statistical Association, Journal of Geology, Annals of Mathematical Statistics*, and the publications of the National Bureau of Economic Research.

ALAN M. MAY is a platform administrator in the petroleum group at Bankers Trust Company, New York. He holds an S.B. from Massachusetts Institute of Technology and an M.B.A. from New York University.

ROBERT M. SOLDOFSKY is associate professor of finance at the State University of Iowa. He holds the M.A. and Ph.D. degrees from Washington University and has served on the faculties of St. Louis University and the University of Arkansas. Among his publications is "A Comment on Variable Annuities," which appeared in the September, 1957, issue of the *Journal of Finance*.

HENRY A. LATANÉ is research associate in economics at the University of North Carolina, where he received his Ph.D. in 1958. He holds the M.B.A. from Harvard Business School and has worked as security analyst in New York City. Previous publications include articles in the *Review of Economics and Statistics*, the *Journal of Political Economy*, and the *Southern Economic Journal*.

ROBERT F. GEMMILL is an economist in the international division, Board of Governors of the Federal Reserve System. He served previously on the faculties of Washington and Lee University and Carleton College.

HOBART C. CARR is chairman of the banking and finance department at New York University. From 1942 to 1956 he was employed at the Federal Reserve Bank of New York as economist in the research department and as chief of the domestic research and salary divisions.

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Vol. XV MARCH 1960 *No. 1*

RELUCTANCE ELASTICITY, LEAST COST, AND MEMBER-BANK BORROWING: A SUGGESTED INTEGRATION

MURRAY E. POLAKOFF*
University of Texas

INTRODUCTION

ANY ANALYSIS of member-bank borrowings from the "Fed" must proceed on some assumption or assumptions regarding the attitude of member banks toward such borrowing. Historically, two major views concerning the motivation of banks in borrowing from the System have been[1] (*a*) that they borrow out of profit considerations at such times as they can find outlets for additional funds at market rates of interest higher than the discount rate and (*b*) that they borrow out of "need," i.e., that they do not borrow to relend at a profit but rather resort to the discount window to meet adverse clearing balances and the temporary loan demands of their customers and

* The writer would like to thank the Social Science Research Council and the Board of Governors of the Federal Reserve System for their help in making this paper possible. The former, through its financial aid, enabled the author to attend its Summer Institute on Research in Monetary and Credit Policy held under the auspices of the Board in Washington, D.C., in 1957. The writer further wishes to thank Dr. Stephen L. McDonald, of Louisiana State University; Dr. Claus W. Ruser, of Standard Oil of New Jersey; Mr. John D. Wells, of the University of Florida; Dr. Mona Dingle, financial economist with the board; and Dr. George Horwich, of Purdue University, for their suggestions and criticisms of certain portions of a previous draft of this paper. Mr. Leonard Schifrin, of the University of Michigan, and Mr. Joe Jones, of the University of Texas, helped with the statistical calculations. Needless to say, neither the particular formulations employed nor the conclusions reached can be attributed to anyone but the author, who accepts full responsibility for the contents of this paper.

1. Still a third explanation—one which may be termed the "expectations" view—argues, in effect, that the discount rate serves primarily as a psychological symbol influencing financial and business behavior. A major difficulty of this approach is that the impact of changes in the discount rate on expectations is difficult to measure statistically and is subject to conflicting interpretations unless the conditions necessitating the rate changes are carefully stipulated. For one of the early discussions of this approach see W. Randolph Burgess, *The Reserve Banks and the Money Market* (rev. ed.; New York: Harper & Bros., 1946), p. 221.

that they repay these debts as quickly as possible.[2] The second motive gains support from the banks' "tradition against borrowing," while their reluctance to borrow is further reinforced by the policing action of the System under Section 4 and the Foreword to recently amended Regulation A of the Federal Reserve Act. These both insist that such borrowings take place only on the basis of temporary and legitimate needs.[3]

With the revival of discount policy in the 1950's as an instrument of credit control by the Fed, the controversy over the relative merits of the "need" versus "profitability" criteria resumed.[4] A modified version of the profitability thesis has gained some favor recently as either an alternative or a supplement to the need theory.[5] Briefly put, this version assumes that banks in the aggregate respond in some measure to the spread between the discount rate and the cost of alternative sources of reserve funds. Adjustment of bank reserves becomes in part a function of the relative profitability of the two alternatives, the banks preferring the less costly method. Starting out from a position of equilibrium, if the discount rate should fall relative to the Treasury bill rate, the banks will respond by increasing their borrowings from the Fed, since they find such additional borrowings

2. The earliest and most influential exponent of the "need" theory is Dr. Winfield W. Riefler of the board. The Riefler thesis states that open-market and customers'-loan rates are, to a large measure, a function of central bank credit, with marginal bank borrowings constituting the decisive influence on money-market rates. Given the tradition against borrowing, the larger the volume of borrowings, the more member banks will attempt to contract loans to repay indebtedness. This will be accomplished through the sale of open-market paper increasing its yield. Conversely, when borrowings are low, funds will be offered by the banks through the purchase of such paper, thereby driving down yields. As a result, there will exist at any one time a positive correlation between open-market rates and the volume of member-bank borrowings (see *Money Rates and Money Markets in the United States* [New York: Harper & Bros., 1930], chap. 2, pp. 16–36).

3. For the Foreword to Regulation A, see the *Federal Reserve Bulletin*, January, 1955, pp. 8–9. This should not be taken to imply uniformity of borrowing behavior among all individual banks in the System. Some banks have litle compunction against borrowing from the Reserve banks; others refuse to borrow under any circumstances. E.g., until very recently, member banks in Austin, Texas, had not made use of the discount window in over twenty years.

4. See Edward C. Simmons, "A Note on the Revival of Federal Reserve Discount Policy," *Journal of Finance*, XI, No. 4 (December, 1956), 413–21.

5. See Warren L. Smith, "The Discount Rate as a Credit-Control Weapon," *Journal of Political Economy*, XLVI, No. 2 (April, 1958), 171–73; also Charls E. Walker, "Discount Policy in the Light of Recent Experience," *Journal of Finance*, II, No. 2 (May, 1957), 230. Among the explanations offered by a spokesman for the Fed for raising the discount rate from 3 to 3½ per cent in August, 1957, was the fear that member banks might abuse the borrowing privilege, since prior to the increase the discount rate was well below the yields on short-term governments (*New York Times*, August 9, 1957). For an early discussion of the influence of the least-cost spread on member-bank indebtedness see R. C. Turner, *Member Bank Borrowing* (Columbus: Ohio State University Press, 1938), pp. 91–144.

more attractive than the sale of Treasury bills as a means of adjusting their reserve positions. The greater the spread, the larger will be the volume of borrowings. Conversely, if the discount rate should rise relative to the bill rate, this would result in a smaller aggregate volume of bank indebtedness, since the relative cost of such borrowings has increased.[6] That both motives are currently considered to be significant may be seen from the following statement made by Chairman Martin of the Board of Governors in 1954:

> In the first instance, increasing pressure on bank reserve positions (increased need for borrowing) may be developed through use of the open market instrument alone. At a point, however, it will become appropriate to support the effectiveness of this open market action by an increase in the discount rate, strengthening the *reluctance* of member banks to remain indebted to the Federal Reserve by making borrowing more *expensive* as a means of adjusting bank reserve positions.[7]

For those willing to accept the existence of both motives, however, a major difficulty which remains unresolved is the manner by which they can be integrated into a consistent theory. Some unifying principle is needed whereby least cost and need can be given a common denominator *and* the *relative* importance of both assessed at *various* levels of borrowings so that their differential impact upon further borrowings can be estimated. The purpose of this paper is to attempt to integrate the two theories in such a manner that determinate conclusions regarding the relations of the variables may be stated. Once this is done, the validity of the hypothesis may be tested by comparing the general shape of the expansion path of borrowings suggested by it with the path shown by empirical data for the period 1953–58.

Economic Theory and the Integration Thesis[8]

Assuming both motives to be significant, one should be able to analyze the behavior of member banks in terms of utility functions and indifference curves. One may begin by postulating a psychological cost of borrowing and compare it with the utility derived from the relative profitability of adjusting reserve positions by borrowing. At

6. As Professor Smith makes clear in the article previously cited, regardless of their *need* for additional reserves, the *extent* to which the banks will avail themselves of the discount window depends on the spread between the discount rate and the anticipated yield which would have to be foregone through the liquidation of secondary reserves (*op. cit.*, pp. 172, 176–77).

7. "Replies," *United States Monetary Policy: Recent Thinking and Experience*, Joint Committee of the Economic Report (83d Cong., 2d Sess. [Washington, 1954]), p. 11 (italics supplied).

8. Rather than repeat the more accurate but somewhat cumbersome title of this paper throughout the remainder of the article, henceforth the writer will refer to it as the "integration thesis."

any level of constant utility, let the profitability of borrowing increase at an increasing rate.[9] Given the least-cost spread, the equilibrium volume of borrowing will be at that point where the ratio between the marginal utility of profit and the marginal disutility of borrowing is equal to the net rate of profit on borrowed funds. Given a greater spread and increased profit, a new point of equilibrium will be reached, at which the above ratio will be greater than at the previous equilibrium. This, of course, implies that the disutility of borrowing is increasing more rapidly than the utility of profit from such borrowing.[10] Given still greater spreads, the disutility of borrowing relative to the utility of profit will eventually become so great that member banks will no longer borrow and may even go so far as to repay part of their outstanding indebtedness to the central bank. Such behavior follows from the assumption that there exists a "reluctance elasticity" on the part of member banks when borrowing from the Fed, not only that there is at all times a reluctance to borrow but that such reluctance *increases* as the volume of discounting grows.[11]

9. While the term "profits" has been employed in describing the utility derived by member banks when adjusting their reserve positions by borrowing vis-à-vis the liquidation of Treasury bills, it should be kept in mind that the term actually denotes a cost, albeit a relatively less expensive method of replenishing reserves than through the sale of bills. Furthermore, the break-even point for profits may not necessarily occur at a zero spread; it may be at some negative spread (discount rate above the bill rate) due, among other things, to the cost element involved in meeting a temporary deficiency of reserves through the sale and repurchase of such bills. See the statement by Marriner S. Eccles in *Monetary, Credit, and Fiscal Policies*, Joint Committee on the Economic Report (81st Cong., 1st sess. [Washington, 1949]), p. 225; also David A. Alhadeff, "Monetary Policy and the Treasury Bill Market," *American Economic Review*, XLII, No. 3 (June, 1952), 335.

10. While the following analysis begins at the point where the marginal disutility of borrowing is increasing more rapidly than the marginal utility of profit, it is highly probable that at low borrowing levels the reverse situation may hold, since, for all practical purposes, the marginal disutility of borrowing at such levels is virtually nonexistent. However, as the spread widens and borrowings continue to increase, a point will be reached at which the marginal disutility of borrowing begins to increase more rapidly than the increase in the marginal utility of profits derived from such borrowing. Since this paper is primarily concerned with the shape of the borrowing curve from this point on and since it is impossible to superimpose this lower borrowing segment onto the expansion of borrowings found in the indifference-curve diagrams which follow, the analysis begins at that point where the marginal disutility of borrowing has *already* reached the stage where it is increasing relative to the marginal utility of profit. Quite aside from the question of theoretical completeness, the importance of taking account of the opposite situation at relatively low borrowing levels lies in its effect upon the slope of the borrowings curve in this range. Thus, given a low level of borrowing, as the spread widens, borrowing may be increasing in increasing amounts, with the slope of the curve becoming ever steeper in this range. However, once borrowing has reached the point where its marginal disutility equals and then exceeds the marginal utility of profit, the slope of the curve will begin to taper off, since, for given spreads, borrowings at first will be increasing in constant and later in decreasing amounts.

11. While one might present a rather strong argument for the acceptance of the reluctance elasticity concept on purely empirical grounds, alternatively it may be thought of simply as an analytical device necessary for arriving at a determinate solution to the problem of bank borrowing. As such, it is analogous to many of the more abstract

Both possibilities—lack of any additional borrowing and net repayment of debt—can be illustrated graphically.

In Figure 1, let the horizontal axis represent the volume of member-bank borrowing and the vertical axis the total profit derived from

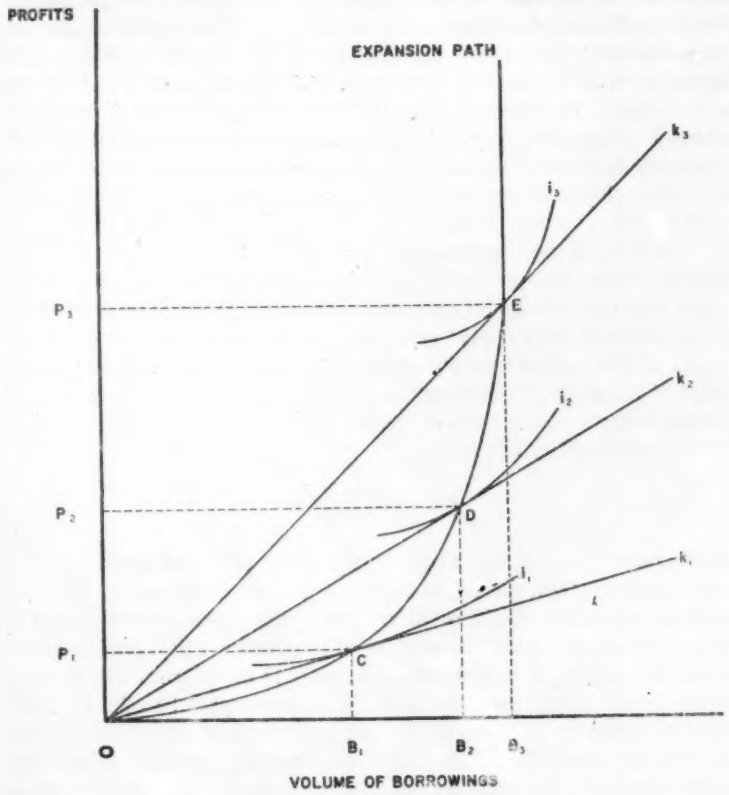

FIG. 1.—Need, least cost, and bank borrowings

axioms employed in economic theory—axioms, moreover, which, by their very nature, cannot be determined directly through mere sense observation but can only be "confirmed" or disconfirmed by linking them with empirical data of a lower order of generality, so that they then serve as instruments of explanation of events in the "real" world. Along such lines, therefore, if the reluctance elasticity theorem is basically valid, then the conclusions derived from it should be reflected in the empirical shape of the expansion path of borrowings. For an excellent discussion and analysis of the entire problem of scientific verification in economics, see Fritz Machlup, "The Problem of Verification in Economics," *Southern Economic Journal*, XXII, No. 1 (July, 1955), 1–21; see also Murray E. Polakoff, "A Re-Evaluation of the 'Scarcity' Postulate in the Light of Recent Developments in the Social Sciences," *Indian Economic Journal*, VI, No. 1 (July, 1958), 3–5.

borrowing as the less costly alternative to the sale of Treasury bills —the assumption being made that the bill rate is representative of all open-market rates. Let K represent the least-cost spread, i.e., the difference between the yield on Treasury bills and the discount rate. Hence K corresponds to the opportunity or consumption-possibility line in traditional indifference-curve analysis. Now let k_1, k_2, and k_3, all emanating from the origin and positively sloped, represent different positive K, the least-cost spread increasing with the steepness of the slope. The slopes of these lines are equal to P_b/B ($\triangle P_b/\triangle B$), where P_b represents total profit obtained through the use of the discount window and B represents the absolute volume of borrowing itself. The slopes of the indifference curves (i_1, i_2, i_3) are equal to $-MD_B/MU_p$, where MD_B equals the marginal disutility of borrowing and MU_p is the marginal utility of profit. The fact that the indifference curves are positively sloped and concave to the origin indicates that the rate of increase of increase of profit from borrowing for a constant utility level is increasing. At higher utility levels the slopes of the indifference curves become increasingly steeper. At the point of tangency, C, between the k_1 and the i_1 curves, the least-cost spread is equal to the ratio of the marginal disutility of borrowing to the marginal utility of profits,

$$\left(k_1 = \frac{-MD_B}{MU_p}\right);$$

at this point the volume of borrowing will be OB_1 and the amount of total earnings OP_1. Given an increase in the spread to k_2, the new point of equilibrium will be at D, where the slopes of the k_2 and i_2 curves are equal. At D the volume of borrowing will have increased from OB_1 to OB_2, with a resulting increase in profit from OP_1 to OP_2. Given a still larger increase in the least-cost spread to k_3, the new point of tangency between the k_3 and i_3 curves is at E, at which point total utility has been maximized. Given k_3, any attempt to increase profits beyond OP_3 with borrowings in excess of OB_3 will create a situation in which total utility declines, since member banks are already on the highest possible indifference curve in the given situation. Any other indifference curve will intersect the k_3 line at a lower level than the i_3 curve. Therefore, point E on i_3 represents the most desirable combination of borrowing and profit given k_3, namely, OB_3 and OP_3; and at E the marginal propensity to borrow is zero. Assuming no net repayment of bank debt beyond this point and allowing K to take on all possible positions, the result will be the expansion path seen in Figure 1.

Figure 2 is essentially similar in assumptions and results to Figure 1, with the important difference that at E there has already taken place some net repayment of bank debt, so that the level of outstanding indebtedness is now at OB_3, while total profit at that level is OP_3. As in Figure 1, given k_3, any attempt to increase profit beyond OP_3 with borrowings in excess of OB_3 can result only in a decline in total utility. Given the fact of net repayment and allowing K to take on all possible positions, the shape of the reaction curve then takes the form seen in Figure 2.

If the foregoing analysis is essentially correct, then when Figures 1 and 2 are transformed so that the least-cost spread is measured along the horizontal axis and the volume of member-bank indebted-

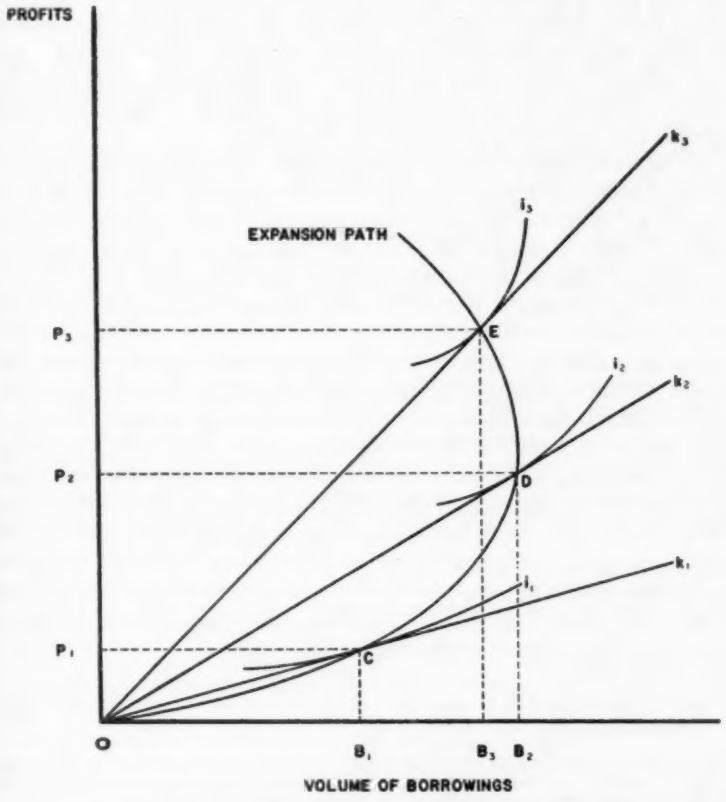

FIG. 2.—Need, least cost, and bank borrowings

ness along the vertical axis, as is done in Figure 3, the shape of the curve depicting the functional relationship between these two variables should be one of those indicated by *A* or *B* rather than by *C* or *D*. The latter are drawn under the alternative assumptions that (1) least cost is the primary consideration influencing the extent of member-bank borrowing in the adjustment of reserve positions[12] or (2), given the operation of dual motives, that of reluctance tends to become correspondingly weaker relative to profitability as the spread widens and borrowings grow.[13] In either case, as the spread increases, there would appear to be little or no ceiling to the volume of indebtedness incurred by member banks in the aggregate during an expansionary period. As a result, with increasing spreads, the absolute volume of borrowings should also increase either by constant or, as is more likely, by increasing amounts. In sum, under the alternative assumptions that profitability is either the prime or the more important variable determining the extent of borrowing, as borrowing increases one should expect a linear or curvilinear function in which spread and borrowing are positively correlated.

If the integration thesis is valid, the empirical data should suggest a curvilinear function having the characteristics of either *A* or *B* in Figure 3.[14] Curve *A* illustrates a situation in which, as borrowings increase beyond a certain level, the slope of the curve has a tendency gradually to flatten out until a spread is finally reached at which the marginal propensity to borrow is zero. Beyond this point the demand for borrowed funds is perfectly inelastic. Curve *B*, on the other hand, indicates a situation in which, as the spread widens, the slope of the curve becomes progressively flatter until a positive spread is reached, beyond which there occurs an actual downturn in the amount of indebtedness outstanding. Which of these latter results will actually occur in any particular time period cannot be determined a priori but must be derived from empirical data. Much more to the point for the purposes of this paper, however, is the fact that if the integration hypothesis is correct, then under no circumstances should the data indicate a positively sloped linear function or a curvilinear one in which the slope of the curve becomes increasingly steeper throughout the entire range of borrowings.

12. Smith, *op. cit.*, p. 172.

13. Walker, *op. cit.*, p. 230.

14. The dashed lines in *A* and *B* of Figure 3 indicate that range where, for given spreads, the volume of borrowing is increasing in increasing or constant amounts. For a theoretical explanation of such behavior at low borrowing levels see n. 10.

Statistical Procedure and Empirical Findings

In attempting to test the integration thesis, the writer was immediately faced with the problem of determining the "proper" function to fit to the scatter diagrams of least-cost spread plotted against discounts and advances. It would have been a relatively simple, though misleading, matter to verify the thesis by merely selecting a mathematical function which would behave in such a manner as to fit the hypothesis. To avoid the restrictions which inevitably accompany the selection of a curve, it was decided to employ a technique which is often considered only a first step in fitting a function. This technique has the basic merit, however, of minimizing any preconceptions concerning the underlying shape of the curve while, at the same time, suggesting its general nature. The method was the relatively simple one of computing the arithmetic means of the dependent variable (discounts and advances) for given intervals of the independent variable (least-cost spread). E.g., in Charts I(A)(B)–IV(A)(B) the horizontal lines represent the arithmetic means of discounts and advances for uniform intervals of the spread, the sole difference in the two series lying in the fact that Series A represents weekly data while Series B is composed of monthly data.[15] Regardless of the time interval employed in the different series, the plotted data indicate that the general shape of the curves in *all* the scatter diagrams are *definitely* not of the types C and D in Figure 3, but are like A and B.[16]

15. While more complicated and sophisticated methods for estimating the relationship of the two variables are available (e.g., the use of analysis of variance to determine the degree of the polynomial to be fit to the data), regression equations are basically only polynomials fitted to the means of arrays. In the case of Series A, the scatter of the points from the weekly means is sufficiently wide so that estimates of the coefficients of any fitted curve would be unreliable. The parameters of a fitted polynomial are needed only when it is desired to estimate or predict the value of the dependent variable for given values of the independent variable. However, the prediction of borrowing from knowledge of the least-cost spread is not the central theme of this paper. The general nature of the relationship between the variables is.

16. Because of the wide variation in the values of the observations from their weekly means (especially in Charts IA, IIA), it was felt that the reader might legitimately question the validity of such weekly averages as indicating the true path of the function. Accordingly, monthly data were introduced at this point, in order to determine whether or not the dispersion could be narrowed without, at the same time, affecting the general shape of the curve. Obviously, in lengthening the time interval the effects of random variation are reduced. Similarly, the lengthening procedure eliminates any periodic variation that may be inherent within the time interval. If, after lengthenng the time interval, a specific pattern still persists, the probabillty that this pattern does indeed reflect the underlying functional relationship will be increased.

Although not included in the body of the paper, the writer also plotted yearly averages of daily figures for those dates coinciding with the weekly and monthly scatter diagrams to be found in Charts I(A)(B)–II(A)(B). While the use of such annual data eliminated

To obtain the greatest number of observations falling into each class, weekly data were used in Series A for a 5½-year period beginning in July, 1953, and extending through December, 1958. Similarly, weekly data were employed when the period was broken down into subperiods delineating the several cyclical phases.[17] The monthly data covered the same over-all period as did the weekly, with an identical cyclical breakdown. The July, 1953, starting point was dictated by several considerations: (1) the need to select an initial date free from the wartime and postwar practice of the Fed of pegging

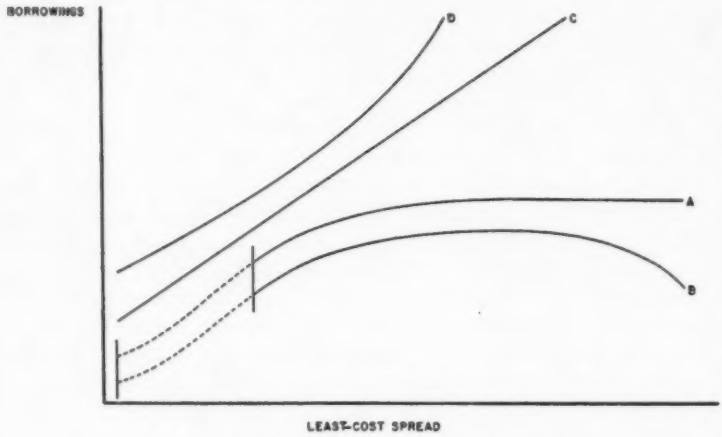

FIG. 3.—Possible expansion paths of borrowings

the yields on government securities; (2) the fact that weekly averages of daily figures for member-bank borrowings were first reported in the *Federal Reserve Bulletin* in February, 1953; and (3) the fact that July, 1953, marked the peak of the prior cyclical phase as

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seasonal variation such as the well-known tendency of the banks to reduce debt to the Fed on statement dates, particularly at year-end, thereby further cutting down on the degree of dispersion to be found in the weekly data, the general shape of the curves in the annual scatter diagrams *continued to resemble* that of their weekly and monthly counterparts. Such differences as appeared related not to the leveling-off in the volume of borrowings but rather to the fact that no apparent downturn in the level of indebtedness outstanding occurred after a peak spread of 0.11 per cent was reached. However, since, for the comparable weekly and monthly data, such downturn as occurs appears to take place *beyond* a spread of 0.1 per cent, the degree of aggregation required in computing annual means might well preclude observation of such a downturn.

17. For some of the class intervals the number of observations is small, especially for those of the larger and smaller values of the spread in Charts IA–IVA and IB–IVB. However, the observations are relatively more numerous in the other intervals and eventually point to a leveling-off, if not an actual downturn, in the curve.

measured by the monthly index of industrial production published in the *Bulletin*. Consequently, when the data for the 5½-year period were disaggregated into their cyclical phases, the opening date for the entire period and for the recession of 1953–54 coincided.

Although the 1957–58 recession ended in April, the terminal date for Charts IA–IB depicting the 5½-year period was extended through December, 1958, since the period between April, 1958, and January 1959—especially the latter months of 1958—was one which witnessed high positive spreads. As such, the relatively high spreads in these months offered a unique empirical test of the contention that beyond some positive spread the absolute volume of indebtedness outstanding might well decline. To indicate the spreads and corresponding volumes of discounts and advances after April, 1958, they have been plotted with the symbol x in Charts IA and IB.[18]

It should be noted that the weekly data on the volume of bank borrowings, as given in the *Bulletin*, are based on the week ending on Wednesday. On the other hand, the figures for the market yield on 3-month Treasury bills are given for the week ending on Saturday. To facilitate the computation, the difference was neglected, and it was assumed that both weekly averages are for a corresponding 7-day period. Furthermore, the market yield on 3-month Treasury bills for the period July 4, 1953, to October 2, 1954, is that quoted at the Federal Reserve Bank in New York City and represents the bill rate in that city. For the remainder of the observed period, it is simply an average of bill rates throughout the country as reported by all the Federal Reserve banks. The weekly and monthly spreads were obtained by subtracting the average weekly and monthly rediscount rates from corresponding average yields on Treasury bills.

The results for the 5½-year period beginning in July, 1953, and extending through December, 1958, may be seen in Charts IA–IB. Here, as in the following charts, the least-cost spread is broken down into uniform class intervals of 0.1 per cent and plotted on the horizontal axis, while discounts and advances in millions of dollars are plotted on the vertical axis.[19] Chart IA indicates that, as the weekly

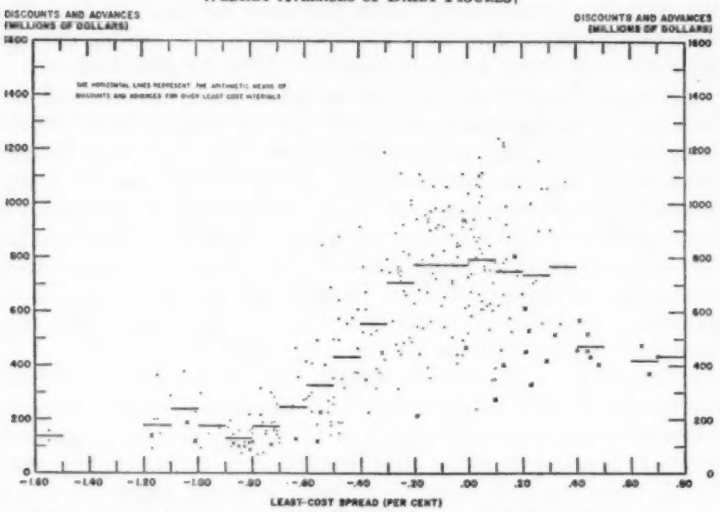
18. Assuming that the data between April and December, 1958, indicate the beginning of a new cyclical phase, it would still appear that the volume of discounts and advances outstanding during these months tended to decrease, once a positive spread of 0.4 per cent was reached in the weekly data and 0.3 per cent in the monthly data. While there is always the possibility that, before the current recovery phase is over, spread values may be as high as, or higher than, those found in the last few months of 1958, the determination of the Reserve authorities to check inflation makes such a situation highly unlikely.

19. The author also tried larger intervals, which caused less variation in the means, and also smaller class intervals, which resulted in greater variation in the means. In all cases, however, the general shape of the expansion path remained the same.

CHART IA*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, JULY, 1953, THROUGH DECEMBER, 1958

WEEKLY AVERAGES OF DAILY FIGURES†

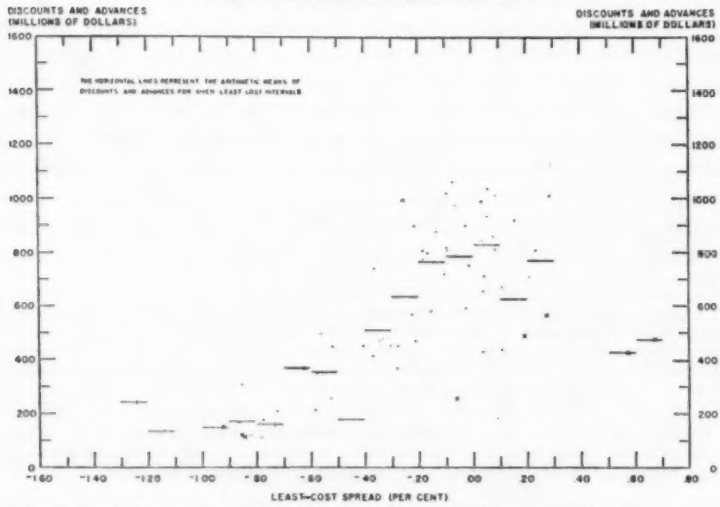


* Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.
† Data after April, 1958, plotted with symbol *x*.

CHART IB*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, JULY, 1953, THROUGH DECEMBER, 1958

MONTHLY AVERAGES OF DAILY FIGURES†



*Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.
† Data after April, 1958, plotted with symbol *x*.

spread increases from —0.9 to —0.2 per cent, borrowings increase in increasing amounts but that from —0.2 to 0.1 per cent the volume of borrowings levels off. From 0.1 per cent and especially after 0.4 per cent, there is a sharp decline in the volume of outstanding indebtedness. The same general pattern found in the weekly data appears to hold true for the monthly data in Chart IB. The results for the entire period of $5\frac{1}{2}$ years as found in Charts IA–IB are consistent with the integration thesis as exemplified by *A* and *B* in Figure 3.

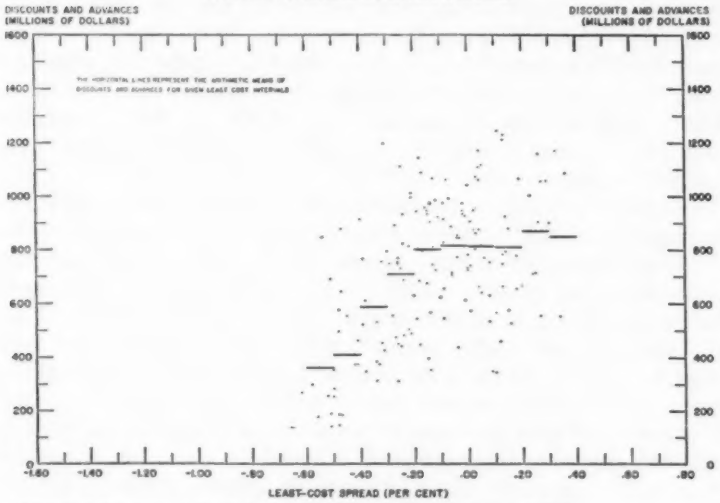
Charts IIA–IIB show the relationship between member-bank borrowings and spread for the expansion phase beginning in September, 1954, and extending through August, 1957, the initial and terminal dates coinciding with the trough and peak for the period as measured by the monthly index of industrial production. Turning first to Chart IIA, the volume of weekly borrowings increases in increasing or constant amounts as the spread widens from —0.6 to —0.3 per cent. Between —0.2 and 0.2 per cent, weekly borrowings tend to flatten out. It is not at all clear from the data whether a decline in the level of indebtedness takes place between 0.3 and 0.4 per cent, the latter representing the peak value of the weekly spread during this period. However, in the monthly data shown in Chart IIB, it appears reasonable to assume that an actual decline in the volume of indebtedness does take place beyond a spread of 0.1 per cent (the slope of the curve at values lower than 0.1 per cent being similar to that found in the comparable weekly data). Both the weekly and the monthly diagrams representing the expansion phase, in indicating a tapering-off of borrowings as spreads increase, are consistent with the integration thesis.

Similarly, Charts IIIA and IIIB and IVA and IVB, showing the relation of weekly and monthly borrowings to their corresponding spreads for the recessions of July, 1953, through August, 1954, and September, 1957, through April, 1958, respectively, are consistent with the integration hypothesis while clearly casting doubt on the validity of the other hypotheses. The same general pattern, although at different values of spread and borrowings, is found here as in the expansion phase. The existence of a downturn is not so apparent in Chart IVB as in the expansion phase (IIB). But beyond a zero spread in Chart IVA, a decrease in discounts and advances is more evident than at a comparable spread in Chart IIA. As for the 1953–54 recession, both weekly and monthly data appear to indicate nothing more than a tapering-off of borrowings, although it might be noted that the weekly data suggest an almost perfectly inelastic demand for funds at the higher spread values.

CHART IIA*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, JULY, 1953, THROUGH DECEMBER, 1958

WEEKLY AVERAGES OF DAILY FIGURES

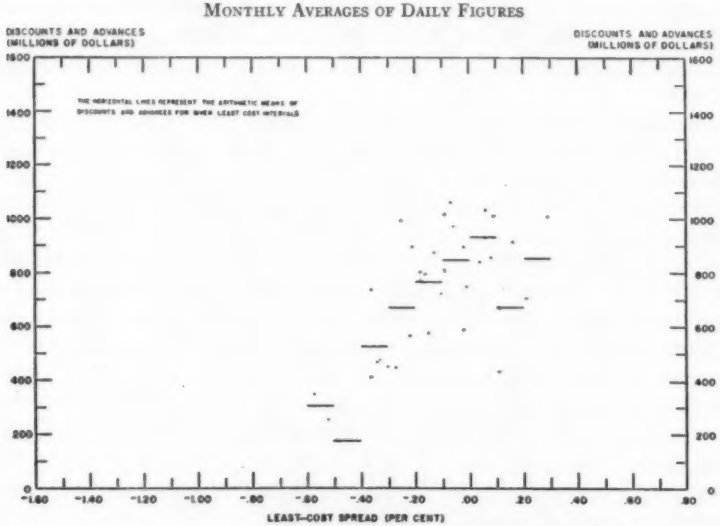


* Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.

CHART IIB*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, SEPTEMBER, 1954, THROUGH AUGUST, 1957

MONTHLY AVERAGES OF DAILY FIGURES

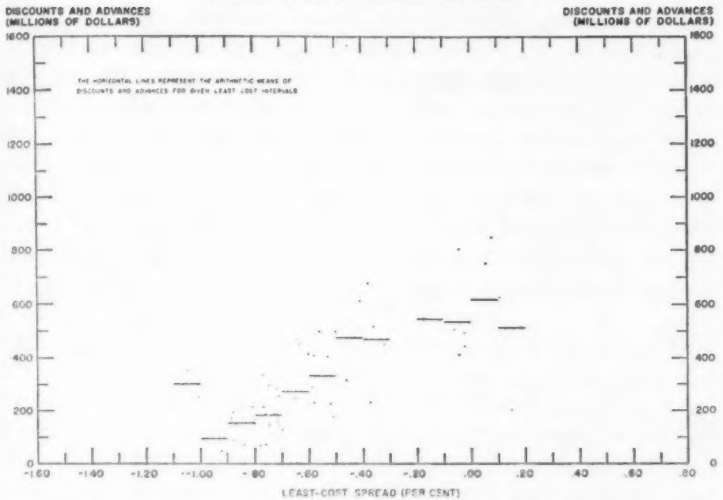


* Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.

CHART IIIA*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, JULY, 1953, THROUGH AUGUST, 1954

WEEKLY AVERAGES OF DAILY FIGURES

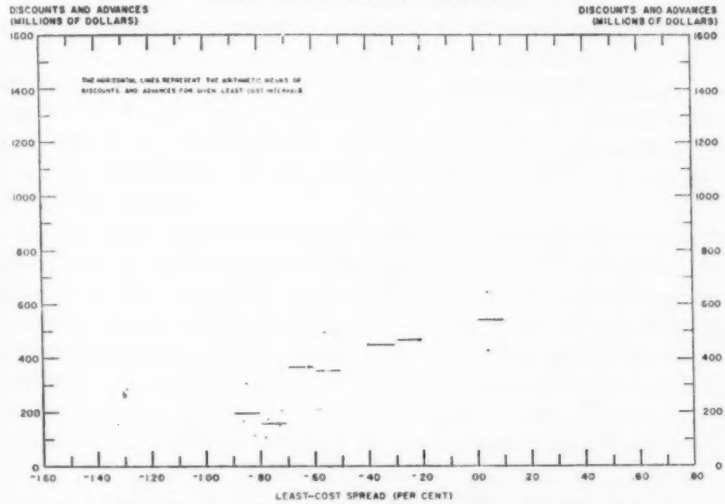


* Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.

CHART IIIB*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, JULY, 1953, THROUGH AUGUST, 1954

MONTHLY AVERAGES OF DAILY FIGURES

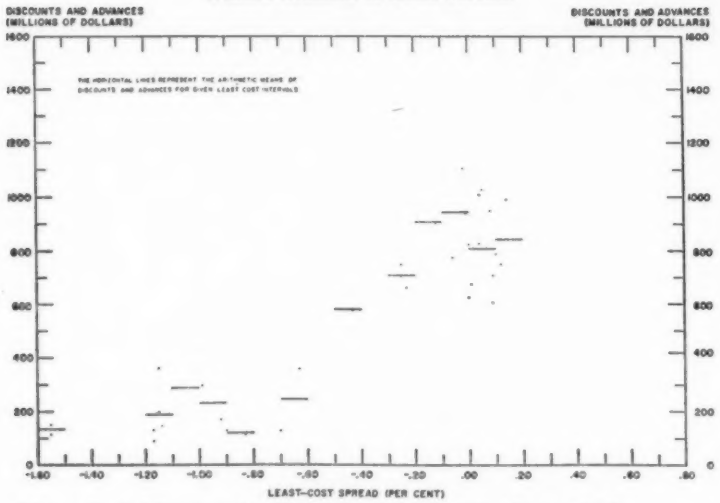


* Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.

CHART IVA*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, SEPTEMBER, 1957, THROUGH APRIL, 1958

WEEKLY AVERAGES OF DAILY FIGURES

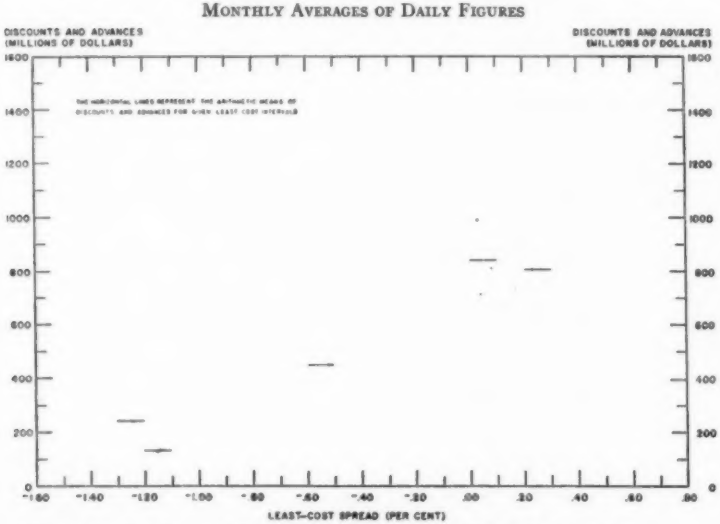


* Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.

CHART IVB*

RELATION OF MEMBER-BANK BORROWINGS TO LEAST-COST SPREAD, SEPTEMBER, 1957, THROUGH APRIL, 1958

MONTHLY AVERAGES OF DAILY FIGURES



* Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.

Summary and Conclusions

With the revival of discount policy as a prime instrument of credit control following the Treasury–Federal Reserve accord in March, 1951, the old controversy over the respective merits of need versus profitability theses has revived. A modified version of the profitability criterion has gained favor in the postwar period, and, while both need and least cost have been recognized as two of the variables influencing member-bank borrowings, a major difficulty remaining unsolved has been the manner in which these seemingly disparate concepts could be integrated so that clear and determinate conclusions might be drawn concerning the relative importance of each at various levels of borrowing.

Through the use of indifference-curve analysis, it was shown that both need and least cost can be related to a common denominator and that, given the additional assumption of reluctance elasticity, a determinate solution can be obtained concerning the expansion path of borrowings. Implications of the integration hypothesis suggest that, beyond some spread, (*a*) borrowings will tend to level off as the marginal propensity to borrow gradually falls to zero and (*b*) the possibility that, once this spread is reached, there may actually occur a downturn in the amount of outstanding indebtedness as member banks repay a part of their liabilities to the Fed. These conclusions diverge from those which assume either that least cost is the prime factor influencing the extent of member-bank borrowing or, given the existence of both motives, that of need becomes increasingly less important relative to profit as the spread widens and borrowings increase. The logical conclusion flowing from either of the latter assumptions is an expansion path in which spread and borrowings are positively correlated with the data and indicate a linear or concave curvilinear function.

To test these various theses, the writer correlated spread with borrowings for a 5½-year period beginning in July, 1953, and ending in January, 1959. The weekly and monthly data for the period suggest a curve in which borrowings show a tendency to flatten out with increasing spreads until some point is reached beyond which there is a downturn. In breaking down the 1953–58 period into one long expansion and two relatively short contraction phases, the subsets of data show a pronounced tendency for the expansion path to taper off,

although, with the possible exception of the monthly data for 1954–57 and the weekly data for the 1957–58 recession, it is not at all evident whether at some positive spread an absolute decrease in discounts and advances takes place in the individual series. Much more important for the purposes of this paper, however, the expansion paths of borrowings suggested by the various scatter diagrams are *all* consistent with the theoretical results deduced from the integration thesis and contradict the alternative hypotheses.

THE EX-DIVIDEND BEHAVIOR OF AMERICAN TELEPHONE AND TELEGRAPH STOCK*

DAVID DURAND AND ALAN M. MAY
Massachusetts Institute of Technology and Bankers Trust Company

THIS PAPER RESULTS from an experiment in using modern time-series methods to analyze the daily movements of a single security—American Telephone and Telegraph capital stock (hereafter abbreviated "AT&T"). The experiment itself considered a variety of questions, which included the possible presence of a weekly cycle in the daily movements, the correlation between the daily movements of the stock and those of the market averages, the possible presence of trends or waves that might offer opportunities for short-term forecasting, and the effect of going ex-dividend on the daily movements. The present discussion deals only with the ex-dividend effect or with closely related questions.

The financial community believes that the price of a stock will drop off on the ex-dividend date by an amount approximately equal to the dividend, other things being equal. Explicit acceptance is to be found in the papers of financial writers;[1] implicit acceptance is found in certain stock-exchange rulings.[2] Campbell and Beranek,[3] however, have challenged this belief. First, they argue, if stocks really dropped by the full amount of the dividend, tax-conscious individuals would have a tremendous incentive to sell with dividend and buy ex-dividend; and such buying and selling would exert great market pressure to reduce the amount of the dropoff. Second, they present statistical

* Financial assistance for this project was provided by a grant from the Sloan Research Fund of the School of Industrial Management at the Massachusetts Institute of Technology. The computations, of which only a small fraction appear in this article, were performed partly on IBM equipment at the Division of Statistical Services at M.I.T. and partly on the IBM 704 calculator at the M.I.T. Computation Center. The authors extend personal thanks to Dr. Enders A. Robinson for aid and advice in some of the technical problems of time-series analysis.

1. See, for example, C. A. Kulp, *The Discounting of Dividends by the Stock Market* (Philadelphia: University of Pennsylvania, 1924), p. 12; George L. Leffler, *The Stock Market* (New York: Ronald Press, 1951), p. 37; or Lester V. Plum and Joseph H. Humphrey, *Investment Analysis and Management* (Homewood, Ill.: Richard D. Irwin, Inc., 1953), p. 119.

2. An example is the rule requiring all open orders to be reduced on the ex-dividend date by the amount of the dividend rounded off to the nearest eighth of a point.

3. James A. Campbell and William Beranek, "Stock Price Behavior on Ex-Dividend Dates," *Journal of Finance*, X (1955), 425–29.

evidence on 399 dividend payments that seems to show a tendency for stocks to drop off by less than the amount of their dividends. Further statistical work by Readett, covering 2,335 common dividend payments and 409 preferred dividend payments, confirms this tendency.[4] But, although these researches have established the presence of a tendency for stocks to drop off by less than the dividend, they have not shown that the discrepancy between dropoff and dividend is particularly pronounced. In fact, stocks seem to drop off, on the average, by about 90 per cent of the dividend.

I. Analysis of AT&T Dropoffs

AT&T is a good medium for studying the ex-dividend effect. It is widely held and of general interest to individual and institutional investors. It enjoys a broad, active, and orderly market. Its regular quarterly dividend of $2.25 over the years studied is large in relation to the one-eighth-point minimum price differential, and this, coupled with the orderly market, makes the ex-dividend effect easily observable.

Table 1 summarizes the ex-dividend behavior of AT&T for a series of 45 consecutive dividends, beginning with the first quarter of 1948 and ending with the first quarter of 1959, thus including the last dividend before the stock split. Omitting two maverick quarters when AT&T went ex-rights and ex-dividend simultaneously—dropping off $10\frac{3}{4}$ in one quarter and $3\frac{7}{8}$ in the other—the table gives a frequency distribution of 43 ex-dividend dropoffs, measured from the closing price with dividend to the closing price ex-dividend. Normally, one would prefer to measure ex-dividend dropoffs from the closing price with dividend to the opening price ex-dividend; and certainly this has been the procedure adopted by Campbell and Beranek, by Readett, and by others.[5] But in a study primarily concerned with a time series of daily movements, measured from closing to closing,[6] consistency demanded that ex-dividend dropoffs also be measured from closing to closing.

The average dropoff on 43 ex-dividend dates was $2.16, or about 4 per cent less than the $2.25 dividend. But the question immediately arises whether such a small difference is significant or not; and the

4. Paul B. Readett, Jr., "The Price Behavior of Stocks on Their Ex-Dividend Dates" (unpublished Master's thesis, Massachusetts Institute of Technology, Cambridge, Mass., 1956).

5. For example, C. Austin Barker, "Price Changes of Stock-Dividend Shares at Ex-Dividend Dates," *Journal of Finance*, XIV (1959), 373–78.

6. We chose to measure daily movements from closing to closing rather than from opening to opening because the Standard and Poor's averages are more readily available at the close. The relevance of these averages is brought out in the Appendix.

question becomes particularly pertinent in view of the substantial amount of variation exhibited by individual dropoffs, ranging from $1\frac{1}{4}$ to $3\frac{3}{8}$ even after the elimination of the mavericks, and also in view of the appreciable amount of variation in the averages for the three periods into which the total series is divided.[7] Such variation is a serious obstacle to the understanding of ex-dividend behavior in general; it plagued the earlier efforts of Campbell and Beranek and of Readett, and it complicates the AT&T analysis. To highlight the un-

TABLE 1

DISTRIBUTION OF DROPOFFS IN AT&T COMMON ON EX-DIVIDEND DATES, MARCH 11, 1948, TO MARCH 6, 1959

DROPOFF* Actual	Per Cent of Dividend	PERIOD I,† MAR. 11, 1948, TO SEPT. 10, 1952	PERIOD II,‡ DEC. 10, 1952, TO MAR. 6, 1957	PERIOD III, JUNE 5, 1957, TO MAR. 5, 1959	PERIODS I, II, AND III COMBINED
$1\frac{1}{4}$	56	....	1	....	1
...	...	....	....	....	....
$1\frac{3}{4}$	72	....	2	....	2
$1\frac{7}{8}$	78	2	1	1	4
$1\frac{7}{8}$	83	3	2	....	5
2	89	5	2	1	8
$2\frac{1}{4}$	94	3	3	1	6
$2\frac{1}{4}$	100	2	1	2	5
$2\frac{1}{4}$	106	....	3	1	4
...	...	....	....	....	....
$2\frac{3}{4}$	117	1	1	1	3
$2\frac{3}{4}$	122	1	....	....	1
$2\frac{3}{4}$	127	....	1	....	1
...	...	....	....	....	....
$3\frac{3}{4}$	150	1	....	1	2
Total	...	18	17	8	43
Average dropoff in dollars	...	2.15	2.07	2.34	2.16
in per cent of the $2.25 dividend	...	96	92	104	96

* Net difference between the closing price with dividend and the closing price ex-dividend (see Sec. I).
† Omits June 11, 1952, when AT&T went ex-rights, in addition to ex-dividend, and dropped $3\frac{1}{4}$.
‡ Omits September 11, 1956, when AT&T went ex-rights, in addition to ex-dividend, and dropped $10\frac{1}{4}$.

7. Perhaps a word of explanation for the three periods is required. Alan May made an exploratory analysis of Period II and wrote up the results in "The Ex-Dividend Behavior of A.T. and T.: An Examination for Profit Maximization" (unpublished Bachelor's thesis at the Massachusetts Institute of Technology, June, 1957). The beginning date of this period, the last quarter of 1952, roughly coincides with the abolition of Saturday trading on the New York Stock Exchange. Hence this period contains only five-day weeks (holidays were interpolated) and appeared to provide a suitable hunting ground for a weekly (5-day) cycle, if one should exist. Actually, no appreciable weekly cycle was found.

Since May's exploratory analysis showed that Period II was not long enough to provide the desired precision, Period I was added, and a new set of computations was run off. In the process, however, the division between the two periods was maintained on the chance that it might show a significant shift over time.

Period III is more or less of an afterthought. Once the main computations were finished, it was difficult to bring most of the charts and tables up to date. Table 1, however, was easy to bring up to date—hence the appearance of Period III in this table only.

certainty due to variability of experience, we present, in Table 2, 95 per cent symmetrical confidence limits calculated for the three periods individually as well as for the entire series. From these, the best one can say is that AT&T tended to fall off, on the average, by an amount lying somewhere between 90 per cent and 102 per cent of the $2.25 dividend. This evidence alone would certainly not justify the conclusion that stocks drop off by less than the amount of the dividend; but, coming as it does on the heels of considerable other evidence, it adds a little collateral support.

II. Implications for Tax-conscious Investors

Although the variability exposed in Table 1 is sufficient to prevent us from concluding with certainty that the average dropoff in AT&T is less than the dividend, it does permit some conclusions about the

TABLE 2

	Limits	
	In Dollars	In Per Cent of Dividend
Period I	1.95–2.35	87–104
Period II	1.87–2.28	83–101
Period III	1.93–2.75	86–122
Entire series	2.03–2.29	90–102

proper strategy for individual taxpayers who want to buy or sell AT&T approximately on the ex-dividend day. The advantage of capital gains to taxpayers in high brackets, or even in medium brackets, is great enough to compensate for a good deal of uncertainty. Consider, for example, the individual taxpayer in the X per cent bracket who has decided to sell long-term holdings of AT&T, or any other stock, on which he has a profit. The question is whether to sell it with dividend or ex-dividend. If he waits to sell ex-dividend, he will increase his income by D per share, the amount of the dividend, and he will reduce his long-term capital gain by C per share, the amount of the dropoff. Thus his net gain attributable to waiting will be $D—C$ before taxes. After taxes, however, his increase in dividend income will amount to only $D(1 - X/100)$ in the X per cent bracket, and his lost capital gains will amount to either $C(1— X/200$ or $3C/4$— the first figure being appropriate for tax brackets up to and including 50 per cent, and the second for brackets of 50 per cent and up. The net gain or loss attributable to waiting is, therefore,

$$D\left(1-\frac{X}{100}\right)-C\left(1-\frac{X}{200}\right) \qquad (X\leq 50)$$

$$D\left(1-\frac{X}{100}\right)-\frac{3C}{4} \qquad (X\geq 50).$$

The two equations formed by equating each of the above quantities to zero determine either the break-even dropoff, given the tax bracket, or the break-even tax bracket, given the dropoff. When the dividend D is \$2.25, these two equations produce the graph in Figure 1, which is drawn as a solid line in spite of the fact that the current tax laws provide only a discrete set of tax brackets—that is, X values. For combinations of C and X above the graph, selling with dividend is the proper procedure; for combinations below, selling ex-dividend is better.

For a dropoff of $2\frac{1}{8}$, which is the value nearest to the \$2.16 average that can actually occur, the break-even tax bracket would be $10\frac{1}{2}$ per cent. But $10\frac{1}{2}$ per cent is an almost non-existent tax bracket.[8] Most individuals and profit-making corporations will be above it, whereas insurance companies and eleemosynary institutions will be below. Thus, if AT&T had invariably dropped off by $2\frac{1}{8}$, virtually all the individuals would have been well advised to sell on the eve of the ex-dividend date, and the institutions, on the other hand, would have been well advised to wait. But dropoff experience varied considerably, and action based on the average would sometimes have seemed ill advised after the event. Thus, with a dropoff of $1\frac{7}{8}$ or less, which occurred 7 times out of 43, individual taxpayers in the 26 per cent bracket would have done better to wait; and with a dropoff of only $1\frac{1}{4}$, which occurred once out of 43, even an individual in the 50 per cent tax bracket should have waited. Or again, with a dropoff of $2\frac{3}{8}$ or more, which occurred 11 times, tax-exempt institutions would have done better to sell with dividend. But the exceptions to the average do not seem either common enough or extreme enough to warrant extraordinary behavior—unless extraordinary dropoffs can be accurately forecast; and the evidence gathered to date (see appendix) affords little hope that they can.

The above analysis, leading to the conclusion that individual investors should ordinarily sell AT&T with dividend rather than ex-dividend, applies to those who intend to sell the stock for a long-term profit on or about the ex-dividend date and also to those who intend to sell for a long-term loss against offsetting long-term gains in other securities. It obviously does not apply to the very few investors who may be able to sell at a loss and deduct this directly from income; these latter are in much the same position as a tax-exempt institution and might gain slightly by selling ex-dividend.

Modification of the above analysis to meet the needs of investors

8. A widow with an income of about \$1,300, all from AT&T, might consider herself in the $10\frac{1}{2}$ per cent bracket on the grounds that $10\frac{1}{2}$ per cent was an average of the untaxed portion of her income and the portion taxed at 20 per cent.

who intend to buy rather than sell AT&T on or about the ex-dividend date is complicated by the fact that few investors know exactly what their tax position will be when they finally sell their holdings. Hence the graph of Figure 1 does not mark the exact dividing line between the area for purchase with dividend (below the graph) and the area for purchase ex-dividend (above the graph). Nevertheless, it is hard to see how a high-tax-bracket individual can lose by deferring his purchase until the ex-dividend date. By so doing, he avoids an immediate and certain high tax liability for dividend income, and he incurs only a remote and probably small potential liability for capital gains; and if he should die holding the stock, he and his heirs would, under the present tax law, escape the latter liability altogether.

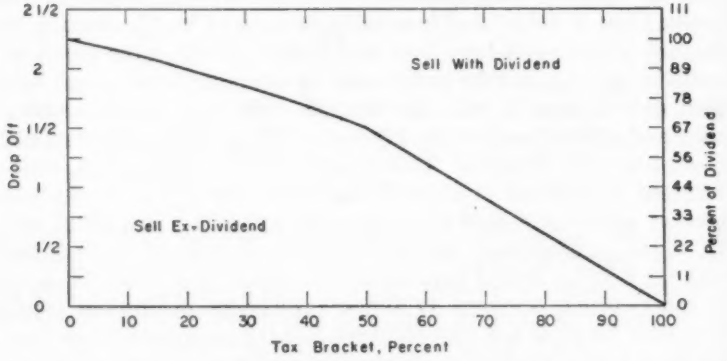


FIG. 1.—Conditions for selling AT&T with dividend or ex-dividend at the $2.25 dividend rate: dropoff versus tax bracket.

III. BEHAVIOR OF AT&T NEAR THE EX-DIVIDEND DATE

Clearly, it is unduly restrictive to limit attention to just 2 days out of each quarter. Must the individual who holds AT&T at a profit and wants to sell it wait until the eve of the ex-dividend date, or can he just as well sell it any time within, say, the 2-week period just prior to the ex-dividend date? Or again, might he not, perhaps, be able to have his cake and eat it by holding a few days past the ex-dividend date, which would assure him of the dividend and might give the stock a chance to recover from its ex-dividend dropoff? Table 3 shows AT&T's average differential price above or below the ex-dividend closing for a period of about 3 weeks before and after the ex-

dividend date.[9] These same averages appear as heavy lines in Figure 2, accompanied by a scatter of points to indicate the observations from which these averages were derived.

In spite of the scatter evident in Figure 2, the averages seem to show a tendency to rise steadily during the last 2 or 3 weeks before ex-dividend—at a rate of roughly one-half point per week—and to show no appreciable tendency to recover from the dropoff during the 2 or 3 weeks immediately following. From this evidence one is tempted to conclude that the last 2 or 3 days before the ex-dividend

TABLE 3

PRICE MOVEMENTS OF AT&T IN RELATION TO EX-DIVIDEND CLOSING

Days before Ex-Dividend	Av. Price above or below Ex-Dividend Close		Days after Ex-Dividend	Av. Price above or below Ex-Dividend Close	
	Period I	Period II		Period I	Period II
16	0.82	0.53	1	0.01	+0.23
15	0.89	0.65	2	− .01	− .07
14	1.10	0.90	3	− .02	− .02
13	1.08	1.15	4	.03	+ .29
12	1.07	0.98	5	− .15	+ .35
11	1.10	0.94	6	− .7	+ .26
10	1.24	0.83	7	− .40	+ .23
9	1.28	0.89	8	− .33	+ .25
8	1.40	1.01	9	− .63	+ .28
7	1.43	1.18	10	− .66	+ .36
6	1.59	1.55	11	− .58	+ .47
5	1.77	1.59	12	− .72	+ .48
4	1.96	1.74	13	− .42	+ .41
3	2.08	3.06	14	− .37	+ .40
2	2.10	2.21	15	− .28	+ .49
1	2.15	2.07	16	−0.21	+0.58

date are a good time for a taxpaying individual to sell AT&T and a poor time for almost anyone to buy; a taxpaying individual should wait to buy until ex-dividend, and a tax-exempt institution should have anticipated the price rise by buying a week or so earlier. But this conclusion needs critical review, for the ex-dividend behavior of AT&T is subject to a number of disturbing influences that might distort the averages.

Of all these disturbing influences, one of the easiest to dispose of is the long-term trend. During the period covered by Figure 2, which coincided roughly with one of the great bull markets of history, AT&T rose from 149¾ on February 2, 1948, to 178 on March 28,

9. The question of what constitutes a week on these charts may call for comment. In Period II the normal week was 5 market days, with holidays filled in by interpolation; therefore, 16 days on the chart represent 3 weeks and 1 day. In Period I, however, the normal week was 6 days in winter and 5 days in summer, so that 16 days may represent more or less than 3 weeks.

1957 (making a low of 138 and a high of 187⅜ between the end dates). The difference of 28¼ points over the period averages only about 0.06 point per week, which constitutes only a very small fraction of the one-half-point-per-week pre-dividend price rise. But note that if the same technique were applied to a stock with a much faster rate of appreciation, the long-term effect might have to be reckoned with; it could create the appearance of a pre-dividend rise or post-dividend recovery.

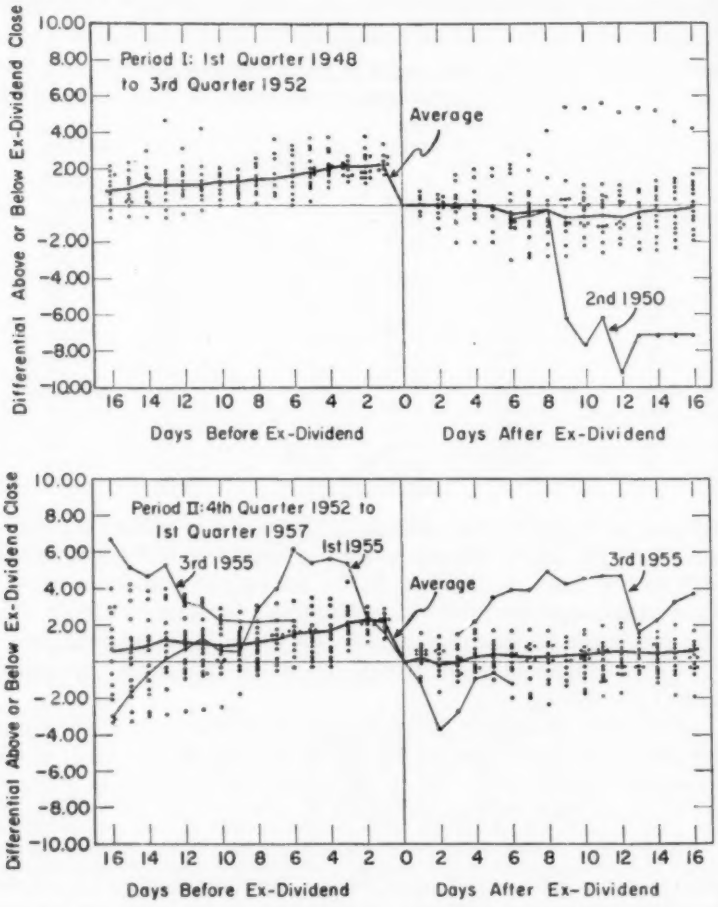


FIG. 2.—Comparative behavior of AT&T before and after ex-dividend dates

Much more disturbing than the long-term trend is the fact that AT&T's movements about the ex-dividend date sometimes follow patterns very different from the average. Four such patterns are indicated in Figure 2, and two of them seem to be traceable directly to events peculiar to AT&T itself. Thus, in the third quarter of 1955, shortly before the ex-dividend date, AT&T went ex-rights (on August 22)—dropping $2\frac{1}{4}$ points on the ex-rights date but showing weakness both before and after.

Another movement associated with rights appears in the first quarter of 1955: on February 16, AT&T's directors voted to authorize a new pre-emptive issue of convertible bonds, and the stock promptly rose from $177\frac{3}{8}$ to $186\frac{1}{2}$ (closing prices), then reacted sharply; but since there were rumors of a stock split at this time,[10] it is not clear how much of this movement was due to the proposed financing. In any event, the movement is clearly disturbing and illustrates one difficulty in studying ex-dividend behavior. Although we felt impelled, as indicated, to expunge from our records two quarters when AT&T went ex-rights and ex-dividend simultaneously, we did not consider such drastic treatment appropriate for all quarters in which a disturbing event occurred somewhere in the proximity of the ex-dividend date.

Sometimes a conspicuous pattern in AT&T will be associated with a major event affecting the entire market. Figure 2 (*top*) shows the big drop following the outbreak of the Korean War in the second quarter of 1950, shortly after AT&T's ex-dividend date. A similar, if not so precipitous, drop followed President Eisenhower's heart attack, shortly after the third ex-dividend date in 1955 (see Fig. 2, *bottom*). Reactions of this magnitude and even those of lesser magnitude may considerably upset the normal ex-dividend behavior of any stock. Previous workers have recognized this problem and have attempted to meet it in one way or another. Campbell and Beranek, for example, analyzed two samples of ex-dividend dropoffs—one limited to days on which the market was quiet, the other unrestricted. They obtained essentially the same results from each sample. Readett analyzed several samples, two of which constituted a pair especially designed to explore the relation between ex-dividend behavior and general market movements. One sample of the pair covered 139 common dividends and 20 preferred dividends occurring in a period of 50 market days (September 18–November 18, 1941) when stock prices were falling; the other covered 146 common and 43 preferred

10. See the *Wall Street Journal*, March 15, 1955, "Abreast of the Market," p. 23.

dividends occurring in a period of 50 market days (December 8–February 5, 1943) when prices were rising. As might be expected, the average dropoff was appreciably greater during the first period, when prices were falling, than during the second.

Although Readett made an important first step in providing evidence that dropoffs are related to general market movements, he did not attempt the next step of isolating the ex-dividend effect from that of the general market. This step we have attempted as part of the time-series analysis of AT&T, and we discuss the results in the appendix.

IV. Conclusion

As we see it, the AT&T experience provides only meager support for the proposition that stocks tend to drop off by less than the amount of the dividend. Over the period studied, AT&T tended to drop off by *approximately* the amount of the dividend; and the discrepancy, if any, was not very great. But if one is inclined to grant the existence of a small discrepancy, then one must conclude that the stock tends to drop off less, not more, than its dividend. This conclusion is not inconsistent with previous results. Neither Campbell and Beranek nor Readett found any evidence of a large discrepancy between typical market dropoffs and dividends, and only by analyzing very large numbers of dropoffs could they show that a small discrepancy was in fact a reality.

On the evidence that AT&T's typical dropoff is not very different from its dividend, the last 2 or 3 days with dividend would seem to be a good time for the tax-conscious individual to sell AT&T and a poor time for almost anyone to buy. There is some evidence that the pre-dividend anticipatory price rise tends to be concentrated in the last 2 or 3 weeks before the ex-dividend date, instead of being spread evenly over the entire quarter. If this is true, the ideal time to buy, especially for a tax-exempt institution, would be some 3–4 weeks prior to the ex-dividend date; for this procedure would enable the buyer to enjoy the dividend while paying little, if any, additional price for the stock.

But these briefly sketched recommendations on the timing of transactions should be taken with a large grain of salt, and we trust they will be. The maximum benefit that could be attributed to good timing in respect to dividends would be in the order of 1 per cent of the total transaction, and this is not sufficient to induce a buyer or seller to undergo any particular inconvenience, to take any uncalled-

for risks, or to overlook other and more important timing considerations. We should not expect a prospective buyer of AT&T who acquired funds on, say, July 1 to postpone buying until August 15, which would be our estimate of the beginning of the price rise preceding the September dividend; the delay could be inconvenient, and the market might rise several points for reasons having nothing to do with dividend anticipation. As we see it, the only positive recommendation is against the purchase of AT&T, especially by high-tax-bracket individuals, during the last 3 days before the ex-dividend date; and even this may turn out to be wrong if many buyers take our advice, for this could have the effect of squeezing the ex-dividend dropoff to much less than its present normal amount of about 95 per cent of the dividend.

APPENDIX

An Experiment in Time-Series Analysis

The time-series experiment was concerned with the possibility of forecasting the daily price movements of AT&T, given the daily movements of one or two market averages. If a reliable system of forecasting could be found, it would provide the means of adjusting ex-dividend dropoffs on days when the market was appreciably up or down. If, say, AT&T were to drop off $2\frac{5}{8}$ on a day when the market was down 2 points, how much of this dropoff would be due to the stock's going ex-dividend and how much to the market decline? The question implies an estimate, or forecast, of the amount by which AT&T would have moved if it had not, in fact, been ex-dividend.

But the time-series experiment failed to produce an effective forecasting system. An example of what it did produce is afforded by the following two regression equations, of which the first refers to Period I and the second to Period II:

$$Y_j = -0.0462 + 27.4\Delta U_j + 13.6\Delta I_j + 8.34\Delta P_{j-1} + 0.037 U_{j-1} - 1.91 I_{j-1}, \quad (1)$$

$$Y_j = -0.0602 + 34.81\Delta U_j + 5.80\Delta I_j + 13.1\Delta P_{j-1} - 2.43\Delta U_{j-1} - 0.26 I_{j-1}. \quad (2)$$

In both these equations, the symbols have the following meanings:

Y_j is the forecasted price change in AT&T,

ΔU_j is the change in the Standard and Poor's utility index on j day,[11]

ΔI_j is the change in the Standard and Poor's industrial index on j day,

ΔP_{j-1} is the change in AT&T on $(j-1)$ day,

11. This study was undertaken before the big revision (March, 1957) in the Standard and Poor's averages. Hence our forecasting formulas apply to the old index rather than the new.

ΔU_{j-1} is the change in the utility index on $(j-1)$ day,

ΔI_{j-1} is the change in the industrial index on $(j-1)$ day.

Thus the forecast of AT&T's current movements is based partly on the current movements of the two Standard and Poor's indexes and partly on the most recent past movements of these indexes as well as on the most recent past movement of AT&T itself.

The effectiveness of these two formulas as forecasting devices can be judged roughly by either of the following two measures:

	Period I	Period II
Coefficient of determination, R^2.....	0.33	0.30
Coefficient of alienation, k.....	0.82	0.84

The coefficient of determination is a familiar statistical measure to be interpreted as indicating the fraction of the total variation in Y associated with, or explained by, variations in the five independent variables. By this measure, only about one-third of the total variation in AT&T's daily movements is explained. The coefficient of alienation, k, is not nearly so familiar as R^2, but it has an important interpretation—measuring the standard error of Y about the regression equation as a fraction of the original standard error.[12] By this measure, which is essentially more pessimistic than R^2, at least 80 per cent of the variation in AT&T's daily movements is unexplained. Thus, by either measure, the major part of the variation in AT&T's daily movements is unexplained by, or unrelated to, the five independent variables and therefore unpredictable in terms of them.

Since equations (1) and (2) represent a sort of average experience over 18 quarters (Period I) or 17 quarters (Period II), it is appropriate to ask whether or not the ineffectiveness of these formulas might not be due to seasonal variation of secular drift during the period covered. To investigate this possibility, we calculated an individual formula for each quarter, having exactly the same five variables as equations (1) and (2); we found that some individual formulas were appreciably more effective than the average formulas, and some were appreciably less effective. Coefficients of determination ranged from $R^2 = 0.11$ to $R^2 = 0.78$.

The immediate conclusion to be drawn from all these results is that, although forecasts of AT&T's daily movements derived from formulas like (1) and (2) are a little better than no forecast at all, they are not very much better. In particular, when these forecasts are used to adjust AT&T's ex-dividend dropoffs for market movements, the adjusted dropoffs showed just about as much variability as did the unadjusted. The standard deviations for the adjusted and unadjusted dropoffs were as follows:

		Adjusted by	
	Unadjusted	Average Formula (1) or (2)	Individual Formula for Each Quarter
Period I.....	0.39	0.32	0.29
Period II.....	0.39	0.39	0.41

But, although the time-series experiment provided no aid in the analysis of AT&T's ex-dividend behavior, it provided some confirmation of previous analyses

12. For further discussion see Truman L. Kelley, *Statistical Methods* (New York: Macmillan Co., 1924), pp. 173–74.

of the behavior of successive movements in speculative price series—both of stocks and of commodities. Successive differences in such series—at daily, weekly, biweekly, or monthly intervals—tend to behave very much like random numbers.[13] According to Roberts, "If, for example, weekly *changes* of the Dow Jones Index are examined statistically, it is apparent that these changes behave very much as if they had been generated by an extremely simple chance model."[14] In our time-series experiment, we found that the successive daily movements of AT&T were almost completely independent of earlier movements in either AT&T or the Standard and Poor's averages. Although the regression formulas (1) and (2) contain three variables representing these past movements—ΔP_{j-1}, ΔU_{j-1}, and ΔI_{j-1}—these three did not carry much weight; if they had been left out entirely, the effectiveness of the formulas (such as it was) would have suffered hardly at all. Judged by the coefficients of determination, R^2, the five-variable formula shows only a very small improvement over a two-variable formula based on the movements of the two indexes, ΔU_j and ΔI_j:

	Period I	Period II
R^2 for two variables	0.32	0.28
R^2 for five variables	0.33	0.30

13. See, for example, M. G. Kendall, "The Analysis of Economic Time-Series. I. Prices," *Journal of the Royal Statistical Society*, Ser. A, CXVI (1953), 11–25.

14. Harry V. Roberts, "Stock Market 'Patterns' and Financial Analysis," *Journal of Finance*, XIV (1959), 1–10.

THE SIZE AND MATURITY OF DIRECT-PLACEMENT LOANS

ROBERT M. SOLDOFSKY
State University of Iowa

THE VOLUME of direct or private placement of corporate securities is one of the outstanding characteristics of the capital markets since World War II.[1] Beginning with 1951, more than $3 billion per year of corporate debt obligations have been financed by direct negotiation with institutional lenders. These lenders are predominantly life insurance companies. As shown in Table 1, since the end of World War II direct placements have been more than 40 per cent of the total of new corporate debt issues each year with the exception of 1946 and 1957. Indeed, for the five years 1948–52 the dollar volume of direct placements was larger than the dollar volume of public issues of debt securities. It has been estimated that for 1948–49 approximately 85 per cent of all new debt securities issued by industrial companies and approximately 25 per cent of those issued by public utilities were placed directly.[2] The annual volume of direct placements has been larger than the annual volume of all equity issues offered to the public since 1946. The total value of equity issues offered to the public for the period 1946–57 was $23.7 billion, and the total value of directly placed corporate debt securities for the same period was $36.9 billion.[3]

This paper is primarily concerned with the amount and final maturities of direct placements. First, data with respect to the amount and final maturity of direct placements for the period 1946–49 will be compared with similar data for 1955. Second, summary tables for

1. For an analysis of the factors that have led to the growth of direct placements see George T. Conklin, Jr., "Direct Placement of Securities," *Commercial and Financial Chronicle*, January 11, 1951, pp. 6 and 21–27. This paper was presented at a meeting of the American Economic Association in Chicago, December 27, 1950. During 1951 and 1952 the Subcommittee on General Credit Control and Debt Management, Joint Congressional Committee on the Economic Report, under the chairmanship of Congressman Wright Patman, was investigating the reasons for the growth of direct placement, their significance, and the possible need for regulation. A number of articles concerning various aspects of direct placement were published in law, insurance, and financial journals during 1951 and 1952.

2. Conklin, *op. cit.*, p. 21.

3. Securities and Exchange Commission, *Twenty-third Annual Report* (Washington, D.C.: Government Printing Office, 1958), p. 216.

1955 direct placements cross-classified by loan size and final maturity will be presented. Third, the six very large "100-year" loans negotiated from 1951 to 1954 will be described. Finally, the ability of direct placement to meet the need for smaller, non-real estate loans will be considered. This will include a comparison of the number of direct placements made for $250,000 or less with the loans of the Small Business Administration, which were limited to $250,000.

1946–49 Compared with 1955 Direct Placements

E. Raymond Corey analyzed direct placements acquired by the eighteen largest life insurance companies for the four-year period,

TABLE 1*

Publicly Offered and Directly Placed Corporate Debt Securities, 1946–56

(Amounts Rounded to Nearest Million Dollars)

Year	All Issues	Public Offerings	Direct Placements	Direct Placements as Per Cent of All Issues
1946	4,882	3,019	1,863	38.2
1947	5,036	2,889	2,147	42.6
1948	5,973	2,965	3,008	50.4
1949	4,890	2,437	2,453	50.2
1950	4,920	2,360	2,560	52.0
1951	5,691	2,364	3,326	58.4
1952	7,601	3,645	3,957	52.1
1953	7,083	3,856	3,228	45.6
1954	7,488	4,003	3,484	46.5
1955	7,420	4,119	3,301	44.5
1956	8,002	4,225	3,777	47.2
1957	9,957	6,118	3,839	38.6

* Source: Securities and Exchange Commission, *Twenty-fourth Annual Report* (Washington, D.C.: Government Printing Office, 1959), p. 216.

1946 through 1949.[4] His study included one table summarizing direct placements classified by the principal amount of the issue[5] and another table summarizing direct placements classified by years to final maturity.[6] Corey estimated that the eighteen life insurance companies held about 80 per cent of the total admitted assets of all life insurance companies in the United States and that the direct placements which they acquired accounted for almost 90 per cent of the volume of such securities.

As part of a larger study of the structure of intermediate-term

4. E. Raymond Corey, *Direct Placement of Corporate Securities* (Boston: Harvard University Press, 1951).

5. *Ibid.*, Exhibit 5, p. 10.

6. *Ibid.*, Exhibit 6, p. 11.

loans, a summary of direct placements of debt instruments during 1955 as published in *Investment Dealer's Digest* has been prepared. These summaries of direct placements for 1955 include cross-classifications for loan size and maturity, maturity and interest rates, and loan size and interest rates.[7]

Table 2 sets out the principal amount of direct placements by size classification for 1946–49, as prepared by Corey, and for 1955.[8] The 1955 study includes all direct placements reported by the *Investment*

TABLE 2*

COMPARISON OF PRINCIPAL AMOUNT AND NUMBER OF DIRECT PLACEMENTS FOR 1946–49 AND 1955

PRINCIPAL AMOUNT OF LOAN	PERCENTAGE OF TOTAL AMOUNT		PERCENTAGE OF TOTAL NUMBER OF LOANS	
	Corey, 1946–49	Soldofsky, 1955	Corey, 1946–49	Soldofsky, 1955
Under $50,000	0.0	0.004	0.6	0.6
$ 50,000–$100,000	0.0	0.01	1.6	1.2
$ 100,000–$200,000	0.1	0.2	4.2	6.8
$ 200,000–$500,000	1.0	1.0	14.4	17.1
$ 500,000–$1,000,000	2.7	2.1	18.7	16.2
$ 1,000,000–$2,000,000	6.5	5.0	22.6	19.3
$ 2,000,000–$5,000,000	12.4	10.9	19.1	17.8
$ 5,000,000–$10,000,000	12.6	11.9	8.8	9.0
$ 10,000,000–$25,000,000†	14.3	16.6	4.9	6.4
$ 25,000,000–$50,000,000†	23.9	15.2	3.7	2.6
$ 50,000,000–$100,000,000	14.6	21.1	1.0	1.7
$100 million and over	11.9	16.0	0.4	.7
	100.0	100.0	100.0	100.0
Total direct placements	$8,956,000,000	$3,801,000,000	2,002	760

* Sources: 1946 through 1949 data: E. Raymond Corey, *Direct Placement of Corporate Securities* (Boston: Harvard University Press, 1951), pp. 10–11. 1955 data: R. M. Soldofsky, "Intermediate-Term Loans for Small Business" (Iowa City: Bureau of Business and Economic Research, State University of Iowa, to be published).

† Corey's data are based on class intervals of $10–$20 million and $20–$50 million.

7. This study was undertaken during the summer of 1957 while the writer had a research appointment at the Bureau of Business and Economic Research, State University of Iowa. The study, "Intermediate-Term Loans for Small Business," includes original cross-classifications (by size and maturity) of both the loans made by the Small Business Administration during the year ending June 30, 1957, and the outstanding loans of member banks of the Federal Reserve System as of October 5, 1955. The study includes an extensive note on the method used in preparing the summaries of direct placements presented in the body of this paper. "Intermediate-Term Loans for Small Business" will be published by the Bureau of Business and Economic Research, State University of Iowa.

8. The per cent distribution presented in Tables 2 and 3 for 1955 as they appear in this article may be influenced by the selection of this single year. It would be desirable to have data tabulated on a comparable basis for direct placements for every year. Such data are not available. In comparing the 1955 percentage distributions with Corey's data for the period 1946–49, this limitation should be kept in mind. It should also be noted that the dollar volume of direct placements for 1955 was 42.4 per cent of the dollar volume for 1946–49.

Dealer's Digest; Corey's study included only direct placements made by eighteen of the largest life insurance companies. It would be expected, therefore, that the present study would include a higher proportion of smaller direct placements in terms of both the dollar amount of loans and the number of loans. Corey's study showed that 1.1 per cent of the amount of direct placements made during the period 1946–49 were for less than $500,000, and the study of 1955 shows 1.2 per cent. In terms of number of loans, Corey's study showed 20.8 per cent below $500,000; and the 1955 study, 25.7 per cent. The difference in the coverage of the two studies is such that no conclusions can be drawn with respect to changes in the direct-placement policies of life insurance companies. It is clear, however, that only a very small proportion of the dollars loaned to business by means of direct placements are in the form of small loans. In 1955 the total volume of loans with principal amounts of $500,000 or less was below $50,000,000.

There has been a clear-cut shift toward very large individual loans since the early post–World War II years. Corey's data showed that 26.5 per cent of the amount of the loans were made for $50,000,000 or more during the period 1946–49, and the 1955 study shows 37.1 per cent. In terms of number of loans for $50,000,000 or more, Corey's study showed 1.4 per cent and the present study shows 2.4 per cent. Corey's coverage is such that he is not likely to have omitted any direct placements for $50,000,000 or more. Additional evidence would be needed before one could hazard a judgment as to whether the increase in the size of individual direct placements was related to an increase in the size of the borrowers.[9]

Table 3 sets out the final maturities of direct placements for 1946–49, as prepared by Corey, and for 1955.[10] Both studies show that less than 15 per cent of the amount of direct placements was for 12 years or less. In terms of the number of direct placements, Corey's study shows that 30.7 per cent were made for 12 years or less, and the 1955 study shows 34.1 per cent. This difference of less than 4 per cent could be the result of such factors as normal year-to-year variation in the volume of intermediate-term loans or differences in the coverage of the two studies. There has been a clear-cut shift toward the

9. The critical values of chi square for Table 2 are 15.507 at the 0.05 level and 20.090 at the 0.01 level.

10. In preparing the 1955 study, the amount and number of loans for each year were tabulated. These 1-year class intervals have been combined in Table 2 in order to facilitate comparison with Corey's data.

use of longer-term loans.[11] For the period 1946–49 Corey reported no direct placements with maturities beyond 40 years. The 1955 study shows that 6.7 per cent of the dollar amount and 0.6 per cent of the number of direct placements had maturities of more than 40 years. Four direct placements with maturities of more than 40 years were reported for 1955 by the *Investment Dealer's Digest*.[12] These four loans were American Airlines, $75,000,000, 4 per cent notes due in 1996 and made by Metropolitan Life; Monsanto Chemical, $25,000,000, 3¾ per cent income debentures due in 2002 and made by Metropolitan Life; Goodyear Tire and Rubber, $50,000,000, 3¾ per cent notes due in 2055 and made by Mutual of New York, Prudential Insurance Company, and Metropolitan Life; and International

TABLE 3*

COMPARISON OF NUMBER OF YEARS TO FINAL MATURITY OF DIRECT PLACEMENTS FOR 1946–49 AND 1955

No. of Years to Final Maturity	Percentage of Total Amount		Percentage of Total No. of Loans	
	Corey, 1946–49	Soldofsky, 1955	Corey, 1946–49	Soldofsky, 1955
1– 2	0.1	0.7	0.2	1.5
3– 7	3.3	1.8	6.6	4.1
8–12	11.4	12.4	23.9	29.5
13–17	26.9	19.5	30.2	25.0
18–22	36.3	24.6	17.6	19.2
23–27	11.9	26.0	10.5	12.7
28–32	8.2	4.0	10.2	6.8
33–37	1.4	1.3	0.5	0.1
38–40	0.5	3.0	0.3	0.5
41–49	.....	2.7	.....	0.3
50–99	.....	.....	.....	.....
100	.....	4.0	.....	0.3
	100.0	100.0	100.0	100.0
Total direct placements	$8,797,000,000	$3,785,000,000	1,914	749

* Sources: 1946–49 data: E. Raymond Corey, *Direct Placement of Corporate Securities* (Boston: Harvard University Press, 1951), pp. 10–11. 1955 data: R. M. Soldofsky, "Intermediate-Term Loans for Small Business" (Iowa City: Bureau of Business and Economic Research, State University of Iowa, to be published).

11. Chi-square values for Table 3 are 19.675 and 24.725. For the four distributions presented in Tables 2 and 3 the computed values of chi-square are substantially greater that the critical values. This means that we would reject the hypothesis that the two distributions are samples from the same population. We may conclude, therefore, that there is a statistically significant difference between the two distributions. I am indebted to Edgar P. Hickman, assistant professor of business and economic statistics, for guidance in the preparation and interpretation of the measures of significance.

12. "Corporate Financing Directory, 1955," *Investment Dealer's Digest*, February 6, 1956.

Business Machines, $110,000,000, 3¾ per cent convertible notes due in 2055 and made by Prudential Insurance Company.[13]

Direct Placements Cross-classified by Size and Maturity

Table 4 presents the amount of 1955 direct placements cross-classified by size and final maturity; Table 5 presents the same data in terms of the number of direct placements. It is evident from Tables 4 and 5 that the great bulk of direct placements are made for $500,000 or more and have maturities of not less than 10 years. The largest amount of loans in any one size-maturity cell is in the cell of 25–29 years and $100,000,000 or more.[14] The $375,000,000 in this cell, which is composed of only three loans, is approximately 10 per cent of all reported direct placements made in 1955.[15] The next largest amount, $274,000,000 (four loans), is in the 25–29 year and $50,000,000–$99,999,999 cell. These seven direct placements totaling $649,000,000 comprise about 17 per cent of the amount of all 1955 direct placements. In terms of the number of direct placements, the 10–14-year and $1,000,000–$4,999,999 cell includes 85 loans, or 11 per cent of the total, which is more than the number recorded in any other cell. The next largest number of loans, 65, is contained in the 15–19-year and $1,000,000–$4,999,999 cell. Together, these two adjacent cells include 150 loans, or 20.0 per cent of the 1955 direct placements included in the summary.

"100-Year Loans"[16]

The Prudential Life Insurance Company of America developed the "100-year loan" form under which the six direct placements shown in Table 6 were negotiated from 1951 to 1954. Prudential made the entire amount of the Chrysler Corporation, Olin-Mathieson

13. The two "100-year" loans included among these four loans made in 1955 and four other "100-year" loans will be discussed in the third section of this paper.

14. The class intervals covered by the cells are not of equal size. The class intervals used in Tables 4 and 5 were originally selected to facilitate comparisons with the Federal Reserve studies of business loans. For example, see "Member Bank Term Lending to Business, 1955–57," *Federal Reserve Bulletin*, April, 1955, pp. 353–68. The class intervals in Tables 2 and 3 were selected to facilitate comparisons with Corey's data.

15. These three loans were made to American Airlines ($100,000,000), Reynolds Metals ($155,000,000), and United Airlines ($120,000,000).

16. The material in this section is based in part upon corrsepondence with officers of the large life insurance companies and officers of corporations that are using the "100-year loans." The major provisions of the "100-year loans" may be found in the financial press at the time they were negotiated and in *Moody's Industrials*.

TABLE 4*—AMOUNT OF DIRECT PLACEMENTS MADE BY UNITED STATES CORPORATIONS IN 1955 CROSS-CLASSIFICATION BY SIZE AND MATURITY
(In $1,000's)

Loan Size ($1,000's)	Maturity (Years) 1–4	5–9	10–14	15–19	20–24	25–29	30–34	35–49	50 or More†	Total	Percentage Distribution by Loan Size
1–99	.....	190	231	111	95	50	.....	.....	.....	677	0.01
100–199	330	250	2,751	1,223	514	1,789	.....	.....	.....	6,857	0.2
200–499	600	3,719	14,937	7,220	5,928	3,845	1,350	.....	.....	37,599	1.0
500–999	3,395	8,704	33,167	10,362	11,089	5,350	4,900	.....	.....	76,967	2.0
1,000–4,999	16,600	30,696	165,575	141,482	124,077	67,536	50,300	4,000	.....	600,266	15.9
5,000–9,999	6,000	15,500	64,100	160,435	148,875	28,689	27,957	.....	.....	451,556	11.9
10,000–24,999	10,000	.....	96,425	154,500	227,000	123,718	10,000	.....	.....	621,643	16.4
25,000–49,999	.....	74,000	90,000	114,888	105,000	93,500	25,000	76,021	.....	578,409	15.3
50,000–99,999	.....	50,000	.....	101,500	143,200	274,000	.....	185,000	50,000	803,700	21.2
100,000 or more	.....	.....	.....	132,000	.....	375,000	.....	.....	100,000	607,000	16.1
Total	$36,925	$183,059	$467,186	$823,721	$765,778	$973,477	$119,507	$265,021	$150,000	$3,784,674	.....
Percentage distribution by final maturity	1.0	4.8	12.3	21.8	20.2	25.7	3.2	7.0	4.0	.....	100.0

* Source: R. M. Soldofsky, "Intermediate-Term Loans for Small Business" (Iowa City: Bureau of Business and Economic Research, State University of Iowa, to be published).

† The two loans included in this column have maturities of 100 years.

TABLE 5*—NUMBER OF DIRECT PLACEMENTS MADE BY UNITED STATES CORPORATIONS IN 1955, CROSS-CLASSIFIED BY SIZE AND MATURITY

Loan Size ($1,000's)	Number of Loans Maturity (Years) 1–4	5–9	10–14	15–19	20–24	25–29	30–34	35–49	50 or More	Total	Percentage Distribution by Loan Size
1–99	....	3	5	3	2	1	....	...	...	14	1.8
100–199	2	2	22	9	4	12	....	...	...	51	6.8
200–499	2	13	51	25	21	12	4	...	...	128	17.1
500–999	5	15	51	15	18	9	8	...	...	121	16.2
1,000–4,999	9	14	85	65	51	28	26	1	...	279	37.3
5,000–9,999	1	2	11	25	23	5	4	...	...	71	9.4
10,000–24,999	1	....	8	12	16	10	1	...	...	48	6.4
25,000–49,999	....	2	3	4	3	3	1	3	...	19	2.6
50,000–99,999	....	1	.....	2	2	4	...	3	1	13	1.7
100,000 or more	....	....	.....	1	.....	3	....	...	1	5	0.7
Total	20	52	236	161	140	87	44	7	2	749	.....
Percentage distribution by final maturity	2.7	6.9	31.5	21.5	18.7	11.6	5.9	0.9	0.3	...	100.0

* Source: R. M. Soldofsky, "Intermediate-Term Loans for Small Business" (Iowa City: Bureau of Business and Economic Research, State University of Iowa, to be published).

Chemical Corporation, and both International Business Machines Corporation loans. Other large life insurance companies participated in the Goodyear Tire and Rubber Company and Union Carbide and Carbon Corporation loans.

The terms of these "100-year loans" require no repayment of principal prior to final maturity. Provisions are clearly made for either the conversion of the 100-year notes into shorter sinking-fund notes or for prepayment.[17] After a period of 8 years the 100-year notes may be converted into 20-year sinking-fund notes *at the option of either the borrower or the lender*.[18] The 100-year notes are not callable, but prepayments may be made.[19] In five of the six loans, additional debt is limited;[20] there is no limitation on sale and leaseback

TABLE 6*

THE "100-YEAR LOANS"

Borrower	Amount of Loan	Coupon Rate of Interest (Per Cent)	Date of Agreement	Date of Maturity
Chrysler Corporation	$250,000,000	3¾	March 1, 1954	July 1, 2054
Goodyear Tire and Rubber Company.	$ 50,000,000	3¾	August 16, 1954	January 1, 2055
International Business Machine Corporation.....	$115,000,000	3¾	January 22, 1952	January 1, 2052
Olin Mathieson Chemical.....	$126,270,000	3¾	November 1, 1954	November 1, 2054
Union Carbide and Carbon Corporation.....	$300,000,000	3¾	November 28, 1951	November 1, 2051

* *Moody's Industrials* (1956).

arrangements in four loans[21] and no limitation on dividends in five loans.[22]

Two major factors attract life insurance companies to longer loans.

17. The detailed terms of each of these loans are slightly different. The discussion in the text is limited to the general pattern of the loans.

18. The period before conversion is 8 years for four issues and 10 years for the other two. The converted notes are to be 20-year notes in three issues and 25-year notes in the other three. Conversion must take place at least 20 (25) years prior to final maturity, so that the conversion will not extend the loans beyond 100 years. There are no penalties on conversion provided for in the loan agreements.

19. In three issues the prepayment is limited to 20 per cent of the original loan in any 12-month period; in the other three issues there is no such limitation.

20. In two cases additional funded debt is limited to that secured by permitted mortgages.

21. In two issues, sale and leaseback arrangements are not permitted on manufacturing properties.

22. Dividends in one case are limited to 100 per cent of earnings subsequent to the date of the agreements plus an amount equal to about 25 per cent of the loan.

Percentage distribution by final maturity ..... 2.7 6.9 31.5 21.5 18.7 11.6 5.9 0.9 0.3 ... 100.0

* Source: W. Braddock Hickman, "Intermediate-Term Loans for Small Business" (Iowa City: Bureau of Business and Economic Research, State University of Iowa, to be published).

First, the assets of life insurance companies are increasing by almost $6,000,000,000 per year, and new investments each year are about three times that amount. Second, the cash requirements of life insurance companies can be projected with considerable accuracy. It is clearly to the advantage of insurance companies to make large, long-term loans in order to reduce the total costs of making investments. The longer the period of the loan, the smaller the proportion of the loan that will be amortized each year. By reducing the cash inflow from the amortization of outstanding loans, the amount of reinvestment will be reduced. If some very long-term loans on which there is no amortization can be made safely, the problem of reinvestment will be reduced. These 100-year single-payment loans are admirably designed to fulfil this desire of life insurance companies for longer-term loans.

Even so, most insurance companies are still unwilling to make 100-year loans; Prudential has not negotiated any since 1954. First, there is no way of appraising a company's credit worthiness for the coming century. Second, lenders do not want to have very long-term loans outstanding at an interest rate below the current market level. The possibility of gearing the interest rate on the "100-year loans" to another interest rate such as the prime rate or the prevailing rate on a government bond was explored, but no workable mechanism could be devised by lenders and borrowers. Both parties realize that during the next hundred years there probably will be violent changes in interest rates that could not be provided for in advance. Third, uncertainty about the method and the level of taxation of life insurance companies makes it undesirable to maintain very long-term loans. Even relatively modest changes in the income tax law as applied to life insurance companies may increase the attractiveness of tax-exempt bonds and equity-type investments. Over the coming century there may be very drastic changes in the taxation of life insurance companies. Fourth, relatively large changes in the proportion of debt and equity investments in life insurance company portfolios may become possible and desirable. During the last fifteen years, more states have permitted life insurance companies to invest in common stocks or to invest a higher proportion of their assets in common stock. For example, in 1951 New York State statutes were revised to permit life insurance companies to invest up to 3 per cent of their assets in quality common stocks. Changes under consideration by the National Association of Insurance Commissioners in the method of valuation and maintenance of reserves for stock could result in a large increase in the proportion of assets invested in stock. Another

change that could increase the equity portion of life insurance company portfolios would be the adoption and widespread use of the variable-annuity contract.

The "100-year loans" are clearly a compromise. Some businesses were seeking very long-term direct-placement loans. At times during the 1951–54 period, major life insurance companies were experiencing difficulty in obtaining good outlets for investable funds. The $3\frac{3}{4}$ per cent rate negotiated on the "100-year loans" was about $\frac{1}{4}$ per cent above the rate that would have been obtained on a conventional 25–30-year direct placement with the same companies. The optional conversion features makes the minimum duration of these loans 28 years. If conversion takes place, the insurance company will be in almost the same position with respect to the flexibility of its portfolio and adjustments in interest rates as it would have been under a conventional 25–30-year direct-placement agreement.

It is also interesting to note the advantages and disadvantages of "100-year loans" from the viewpoint of the borrower.[23] The primary advantage for the large, growing company that considers debt to be a permanent part of its capital structure is that the individual loans would not have to be amortized and other funds borrowed in order to maintain the desired level of loans. It is possible that these "second-round" loans could be obtained only on less favorable terms because of the condition of the capital markets. This is, of course, what has happened. Long-term interest rates are now well above what they were in the early 1950's. There are also notable disadvantages for the borrower. First, the loans were made at a rate which was about $\frac{1}{4}$ per cent above the market at the date of the loan. Second the maturity of the loan may be shortened to as little as 28 years at the option of the lender. It is misleading, in a sense, to call these six specific loans "100-year loans."

If a variable interest rate were incorporated into the loan agreement, as was considered, the corporate liability could not be clearly stated.[24] If the interest rate fluctuated, the security would be almost identical with a participating preferred stock. Surely, the question of deductibility of the interest charges for tax purposes would be raised. Business might be very reluctant to have this question seriously reviewed by Congress.

The very long-term direct placement is not widely used today. A variety of conditions for increasing the flexibility of very long-term

23. For many practical purposes the "100-year loan" type as developed by the Prudential Life Insurance Company is approaching the concept of a perpetual loan with due safeguards for borrower and lender.

24. If a perpetual loan were ever negotiated, it would probably have to provide some mechanism for adjusting interest rates.

loans probably will be developed during the coming years. Although few of the largest life insurance companies have made very long-term direct placements since World War II, their investment policies do not foreclose any possible advantageous arrangement. One executive of a large insurance company stated in a letter: "In fact, about the only really immutable rule of investment that I can see in our securities work is that we must always be convinced that principal and interest will be paid in accordance with the loan agreement and that the borrower will always perform as the loan agreement requires."

Direct Placements for Small Business

There is great public concern about the financing of small business. In April, 1958, the Board of Governors of the Federal Reserve System transmitted a report, *Financing Small Business,* to the Senate Committee on Banking and Currency, Senate Select Committee on Small Business, House Committee on Banking and Currency, and House Select Committee on Small Business.[25] During 1951 and 1952 the Subcommittee on General Credit Control and Debt Management, Joint Congressional Committee on the Economic Report, under the chairmanship of Wright Patman of Texas, inquired into the impact of direct placement. One of the concerns of this subcommittee was the availability of loans to small business. It was said that direct placements make it easier for small businesses to obtain funds as compared with the alternative of a public issue of stock, public issue of bonds, or longer-term loans. The difficulties of selling new stock issues to the public for amounts of $1,000,000 or less are well known. It is also difficult to induce an investment banker to underwrite a small bond issue. For the period 1945–47, the cost of floating bond issues from $500,000 to $2,000,000 was 5.68 per cent of the proceeds. The cost of direct placements of similar size was 0.5–2 per cent. Bank loans are short-term loans and do not fill the needs of business for long-term funds.[26] The advantages of direct placement are undoubtedly important for firms large enough to use effectively a non-real estate loan for $500,000 or more for periods of 10 years or more.

Tables 4 and 5 show that 41.9 per cent of the number of direct placements and 3.2 per cent of the dollar volume of direct placements

25. Federal Reserve System, *Financing Small Business* (Washington, D.C.: Government Printing Office, 1958). This was a committee print.

26. This discussion of the advantages of direct placement was summarized from Conklin, *op. cit.*, pp. 21–27.

reported by the *Investment Dealer's Digest* for 1955 were for less than $1,000,000. About 25.8 per cent of the number and only 1.2 per cent of the dollar volume of direct placements were made for less than $500,000. Most of these smaller loans were made for 10 years or more. Life insurance companies prefer to make larger loans for several reasons. First, the costs incurred in investigating and negotiating small loans are not proportionate to the size of the loan. In fact, the cost of investigating an unknown applicant for a small loan may

TABLE 7*

ONE-YEAR COMPARISON OF NUMBER AND AMOUNT OF SBA LOANS AND DIRECT PLACEMENTS FOR $250,000 OR LESS

Original Maturity (Years)	SBA Loans for Year Ending June 30, 1957		Direct Placements for Year Ending December 31, 1955	
	No.	Amount ($1,000's)	No.	Amount ($1,000's)
1	35	1,481	2	330
2	39	1,278	...	.....
3	205	5,706	...	.....
4	143	5,441	...	.....
5	1,706	47,381	3	580
6	121	7,203	2	290
7	207	13,346	1	200
8	106	7,453	2	265
9	15	889	3	425
10	830	65,732	31	4,726
11	.....	.....	3	600
12	.....	.....	6	1,100
13	.....	.....	5	624
14	.....	.....	3	433
15	.....	.....	15	2,677
16–20	.....	.....	21	3,455
21–25	.....	.....	19	2,999
26 or more	.....	.....	2	415
Total	3,407	$155,910	116	$18,789

* Sources: The figures for private placements are summaries of detailed information which the writer prepared for the monograph, "Intermediate-Term Loans for Small Business" (a projected publication of the Bureau of Business and Economic Research, State University of Iowa). The totals for SBA loans differ from published SBA totals primarily because loans to businesses in United States possessions have been eliminated.

be higher than the cost of an equally thorough investigation of a large loan for a well-known applicant. Second, the follow-up costs of small loans are also high. Third, many, if not most, insurance companies do not have the staff to carry out the investigations that would be necessary to make a large number of non-real estate loans to small businesses. The reasons that insurance companies prefer to make longer-term loans were discussed in the second section of this paper.[27]

27. There are wide variations in the policies of life insurance companies with respect to making smaller loans. For a detailed discussion of these variations see Robert M. Soldofsky, "The Place of Small Business Administration Loans for Small Business," *Iowa Business Digest*, June, 1958, pp. 5–6.

In Table 7 the volume of loans made by the Small Business Administration during the year ending June 30, 1957, is compared with direct placements of $250,000 or less made in 1955.[28] The number of SBA loans was about thirty times as large; the dollar amount of SBA loans was about eight times as large. Only a small proportion of the direct placements for $250,000 or less had original maturities of 10 years or less. Furthermore, about 60 per cent of the direct placements were made to finance companies and public utilities. The SBA made few loans to public utilities and made no loans to finance companies. There appears to be a demand for small, non-real estate loans that is not being met by direct placements.[29]

28. For a detailed statement of the sources and methods used in preparing the loan summaries for the Small Business Administration see Soldofsky, *op. cit.* This article also includes a table of SBA loans cross-classified by size and maturity comparable to those for direct placement included in the present article.

29. For a comparison of SBA loans and the term loans of commercial banks see *ibid.*, pp. 2–4.

INDIVIDUAL RISK PREFERENCE IN PORTFOLIO SELECTION

HENRY ALLEN LATANÉ
University of North Carolina

MODELS OF individual choice behavior may be based on assumptions as to the subjective probabilities of relevant future occurrences, estimated payouts, and individual risk preference. This paper is an attempt to measure individual risk preference when payouts and probabilities are specified.[1] It is based on the choices between hypothetical risky portfolios and safe portfolios carried out by three college investment classes. Each of 74 students was asked to make 20 separate choices between 20 hypothetical risky portfolios and a standard safe portfolio. There was a wide range of risk and return among the portfolios included in the test.

In effect, the students were faced with a set of two-by-two payout matrixes such as that in Table 1, which is based on line 1 of the questionnaire (Table 2).

Payout matrixes in general, like that of Table 1, show the probabilities of relevant future occurrences and the payouts resulting from the combined effects of each possible choice, on the one hand, and each relevant future occurrence, on the other. All this information is needed. It would be impossible for a wealth-holder to make a rational choice among portfolios, for example, if he disregarded either the probability of the relevant future occurrences or the pos-

1. Choice among risky ventures has been the subject matter of a number of previous papers in applied psychology. These papers (e.g., Mosteller and Nogee, "An Experimental Measurement of Utility," *Journal of Political Economy*, LIX [1951], 371–404, and Ward Edwards "Experiments on Economic Decision-making in Gambling Situations," *Econometrica*, XXI [1953], 349–350) are based on gambling situations where the subjects know that they cannot lose or win much money and hence may be of questionable value in portfolio management, which involves the whole fortune of the wealth-holder. The present paper reports the results of a questionnaire administered to students in investment classes. The questionnaire has not been validated by comparison with actual portfolio management decisions by these students, and no claim is made that these students themselves are representative of the population as a whole or even of the colleges which they attend. The questionnaire was administered to three separate classes, however, and the pattern of replies for each class considered separately supported the pattern for the group as a whole. The students were studying investment problems but had had no extensive training in portfolio management. The author of this paper has had no contact with any of the classes. I wish to express my appreciation to Professors Joe Floyd and Avery Cohan, of the University of North Carolina, and Fred Joerg, of Duke University, for administering this questionnaire to their classes.

sible payouts. Given all this information (i.e., a filled-in payout matrix), it is still necessary to use some criteria or guides in making choices among portfolios. The expected value (E) and the standard deviation (S.D.) of the probability distribution of returns are two possible criteria; the geometric mean (G) is a third.[2] Hypotheses as to choices among portfolios may be stated in terms of E, S.D., and G and may be tested by relating these criteria to the proportion of students selecting the risky portfolio.

It seems reasonable to suppose that wealth-holders want the likely return to be high but also dependable and not subject to uncertainty. The expected return, E, is one measure of the likely return, and the S.D. is a measure of the dependability. Thus it may be hypothesized that portfolio preference varies directly with E and inversely with S.D. This is the first hypothesis tested.

TABLE 1

Choice	Return per $1 Invested	
	Bad Year	Good Year
Portfolio A	$1.04	$1.04
Portfolio B	0.50	2.04
Probability of occurrence	0.5	0.5

The first hypothesis assumes only that wealth-holders like higher returns and dislike risk. This assumption alone often permits predictions as to choices among portfolios. But often a high-yielding portfolio is also highly risky, and a safe portfolio does not give a large return. The choice between return and safety in this case depends on individual risk preference. The second hypothesis is an effort to delimit this individual risk preference. It is based on use of the geometric mean of the probability distribution of returns. G is a rational criterion to use in choosing among risky ventures[3] because the repeated choice of that portfolio with the highest G will maximize

2. The probability distribution of a set of returns is the array of all possible returns, together with their probabilities of occurrence. The expected value (i.e., arithmetic mean) is computed by multiplying the possible returns by their respective probabilities and then summing the products. The expected value of the returns from Portfolio B in Table 1 is $0.5 \times 0.50 + 0.5 \times 2.04 = 1.27$. The standard deviation is computed by multiplying the squared deviation of the returns by their probabilities and then summing the products and taking the square root. The S.D. of returns from Portfolio B Table 1 is $\sqrt{0.5(0.50 - 1.27)^2 + 0.5(2.04 - 1.27)^2} = 0.77$. The geometric mean of a group of n returns is the nth root of their product. The G of a probability distribution of returns is the product of the possible returns each raised to the pth power, where p is the probability of its occurrence. In another form, G is the antilog of the expected value of the logs of returns. The G for Portfolio B, Table 1, is $0.50^{0.5} \times 2.04^{0.5} =$ antilog $(0.5 \log 0.50 + 0.5 \log 2.04) = 1.01$.

3. See Henry Allen Latané, "Criteria for Choice among Risky Ventures," *Journal of Political Economy*, LXVII (April, 1959), 144–56.

the probability of having the most valuable portfolio in the long run. For example, the wealth-holder who repeatedly invests exactly \$1.00 in Portfolio B, Table 1, will get a return of \$1.27 per dollar invested if one good year and one bad year occur. On the other hand, the wealth-holder who repeatedly invests his entire wealth will have a return of 1.02 (1.01 per annum) per \$1.00 of original wealth at the end of one bad year and one good year, whatever the order of occurrence. The probability of occurrence of good years and bad years is 0.5. This means that the relative frequency of good years and bad years will approach 0.5 as a limit as the number of observations increases. Under these conditions the wealth-holder who repeatedly invests all his wealth in Portfolio B, Table 1, will get a long-run compound annual return approaching $G = 0.50^{0.5} \times 2.04^{0.5} = 1.01$ as a limit, while the wealth-holder selecting Portfolio A will certainly get a return of 1.04. Consequently, the wealth-holder who repeatedly selects Portfolio B in line 1 is almost certain to do worse in the long run than the wealth-holder who selects Portfolio A. This is true, even though the expected value (i.e., the arithmetic mean of the probability distribution) of the returns of Portfolio B, which is 1.27, is higher than the expected value of Portfolio A. Conversely, the wealth-holder who repeatedly invests all his wealth in Portfolio B in line 7 of Table 2 will get a long-run compound annual return approaching 1.07 as a limit. In each case the wealth-holder who selects the portfolio with the higher geometric mean return will maximize the probability of having the most valuable portfolio at the end of a large number of choices.

As was pointed out by Daniel Bernoulli many years ago,[4] G also is indicated as a criterion for choice among risky ventures when the utility of a small increment of wealth varies inversely with the amount of wealth already possessed. For these reasons it was hypothesized that the students would tend to choose the portfolio with the higher G in each case. To test this hypothesis, the questionnaire was constructed so that one half of the risk portfolios had a geometric mean higher than that of the safe portfolio and the other half had a lower return.

The third hypothesis to be tested was that which Friedman and Savage say is the most significant generalization in the literature about individual risk preference, that is, "people must in general be paid a premium to induce them to undertake moderate risks instead

4. See Daniel Bernoulli, "Exposition of a New Theory on the Measurement of Risk," trans. Louise Sommer, *Econometrica*, XXII (January, 1954), 28.

of subjecting themselves to either small or large risks."[5] They quote Edwin Cannon, who, in discussing the rate of return on investments, concludes that "the probability is that the classes of investments which on the average return most to the investor are neither the very safest of all nor the very riskiest, but the intermediate classes which do not appeal either to timidity or to the gambling instinct."[6] This hypothesis was tested by varying the range of payouts in Portfolio B while holding the geometric mean return constant.

The final hypothesis was that ease of calculation and familiarity with the equiprobable case would lead the students to prefer the risky portfolios where the probabilities of a good and bad year were each 0.5.

To test these hypotheses, a total of 74 students were given approximately one half-hour each to answer the following questionnaire:

Mr. Adams has enough income to support his family. He recently has inherited a substantial amount of money which he wants to invest in securities. This is his entire wealth and he wants to build up his fortune over a period of years by reinvesting all returns. He has looked over the situation and has decided to choose either Portfolio A or Portfolio B. He is confident that Portfolio A will return $1.04 at the end of the year for each dollar invested, that is, he is certain that Portfolio A will give a 4 per cent yield whatever happens, but he believes that the return from Portfolio B will depend on whether the coming year is a good year or a bad year. For the purposes of this problem there are no brokerage fees and no taxes. Mr. Adams will hold the portfolio of his choice for one year and will have the chance to reinvest in either portfolio on the same terms at the end of the year.

The advantage or disadvantage of holding Portfolio B of course depends on the probability of good and bad years and the returns in those years. In Table 2 below various assumptions as to Mr. Adams' beliefs about the probability of a good or bad year and the returns per $1 invested in Portfolio B are tabulated. For example, in line 3 Mr. Adams is assumed to believe that a good and bad year are equally probable and that Portfolio B will return 1.14 (that is, give a net yield of 14 per cent) in a good year but only .93 (that is a net loss of 7 per cent) in a bad year. In line 13 he considers it nine times as likely that there will be a bad year as a good year and Portfolio B will show a net loss of 6 per cent in a bad year but will double in value in the unlikely event that a good year occurs. In line 2 the good year is nine times as likely as a bad year and Portfolio B will show a return of 1.16 in a good year but will show a loss of 50 per cent of its value if a bad year occurs.

The problem is to decide for each set of probability beliefs which portfolio Mr. Adams should buy assuming that all of his beliefs about returns and about the probability of good and bad years are true. For example, in line 0 it is shown that Portfolio B will return 1.04 if a bad year occurs and 1.06 if a good year occurs.

5. Milton Friedman and L. J. Savage, "The Utility Analysis of Choices Involving Risk," *Journal of Political Economy*, LVI (1948), 384.

6. Article on "Profit," in *Dictionary of Political Economy*, ed. R. H. Inglis Palgrave (new ed., ed. Henry Higgs; London, 1926), p. 284.

Portfolio A will return 1.04 in either year. If Mr. Adams holds such probability beliefs he should choose Portfolio B as he would be as well off holding this portfolio as holding Portfolio A if the worst happens and would be better off if the best occurs. Consequently a check is put in the Portfolio B column to signify the choice of Portfolio B.

Please check in each line the portfolio that you believe Mr. Adams should choose assuming that his probability beliefs are true.

The set of probabilities and payouts in Table 2 were selected initially by taking the probability of occurrence of a bad year to be

TABLE 2

Line	Probability of Occurrence		Portfolio Return per $1 Invested			Choice (Check One in Each Line)*	
				Port B.			
	Bad Yr.	Good Yr.	Port. A	Bad Yr.	Good Yr.	Port. A	Port. B
0.....	...	...	1.04	1.04	1.06	...	...
1.....	0.5	0.5	1.04	0.50	2.04	48	26
2.....	.1	.9	1.04	0.50	1.16	24	50
3.....	.5	.5	1.04	0.93	1.14	35	39
4.....	.1	.9	1.04	0.10	1.30	52	22
5.....	.5	.5	1.04	0.83	1.28	42	32
6.....	.9	.1	1.04	0.78	10.00	62	12
7.....	.5	.5	1.04	0.50	2.30	39	35
8.....	.1	.9	1.04	0.10	1.40	50	24
9.....	.5	.5	1.04	0.85	1.30	21	53
10.....	.5	.5	1.04	0.71	1.44	51	23
11.....	.5	.5	1.04	0.87	1.32	18	56
12.....	.5	.5	1.04	0.10	11.50	50	24
13.....	.9	.1	1.04	0.94	2.00	57	17
14.....	.5	.5	1.04	0.95	1.16	12	62
15.....	.5	.5	1.04	0.10	10.20	49	25
16.....	.9	.1	1.04	0.83	10.00	49	25
17.....	.1	.9	1.04	0.50	1.09	54	20
18.....	.9	.1	1.04	1.00	2.00	24	50
19.....	.5	.5	1.04	0.81	1.26	57	17
20.....	0.5	0.5	1.04	0.77	1.49	34	40
Total.....						828	652

* The numbers indicate the number of students, out of a total of 74, who checked the indicated space. These numbers, of course, were not on the original questionnaire.

either 0.5, 0.1, or 0.9 (the corresponding probability of a good year being 0.5, 0.9, or 0.1). Then one return from the risk portfolio was specified, and the other was determined so that G would be 1.01, 1.03, 1.05, or 1.07. The specified returns were selected so that there would be a wide range of standard deviations for each G. The order of listing was randomized.

Summary results of the questionnaire are shown in Table 3. In this table the lines of the questionnaire are rearranged; the expected value (E), the standard deviation (S.D.), and geometric mean (G) of the probability distributions of returns are shown; and, finally, the proportion of students, out of a total of 74, who preferred the

risk portfolio are listed. The choices are divided into four groups of five each, based on the geometric means and the standard deviations of the Portfolio B returns. The proportion of choices of Portfolio B for each of these four groups is shown.

There is no clear linear relationship between the proportion of students choosing a specified risky portfolio and the expected value and standard deviation of the probability distribution of returns from that portfolio. However, the underlying hypothesis that students would select portfolios with high E and low S.D. is supported by

TABLE 3

Line	Probability of Bad Year	Portfolio Return per $1 Invested in Risk Portfolio		Criteria			Proportion of Students Choosing Risk Port. (74 Students =1.00)
		Bad Yr.	Good Yr.	E	S.D.	G	
14	0.5	0.95	1.16	1.055	0.10	1.05	0.84
11	.5	0.87	1.32	1.095	0.22	1.07	.76
9	.5	0.85	1.30	1.075	0.22	1.05	.72
2	.1	0.50	1.16	1.0945	0.20	1.07	.68
18	.9	1.00	2.00	1.100	0.30	1.07	.68
Group I: Risk Portfolios with G of over 1.04 and S.D. of under 0.35 (0.74)							
20	.5	0.77	1.49	1.130	0.36	1.07	.54
7	.5	0.50	2.30	1.400	0.90	1.07	.47
12	.5	0.10	11.50	5.800	5.70	1.07	.32
8	.1	0.10	1.40	1.360	0.39	1.07	.32
16	.9	0.83	10.00	1.750	2.75	1.07	.34
Group II: Risk Portfolios with G of over 1.04 and S.D. of over 0.35 (0.40)							
3	.5	0.93	1.14	1.035	0.10	1.03	.53
5	.5	0.83	1.28	1.055	0.22	1.03	.43
19	.5	0.81	1.26	1.035	0.22	1.01	.23
17	.1	0.50	1.09	1.031	0.18	1.01	.27
13	.9	0.94	2.00	1.046	0.32	1.01	.23
Group III: Risk Portfolios with G of under 1.04 and S.D. of under 0.35 (0.34)							
10	.5	0.71	1.44	1.075	0.36	1.01	.31
1	.5	0.50	2.04	1.270	0.77	1.01	.35
15	.5	0.10	10.20	5.150	5.05	1.01	.34
4	.1	0.10	1.30	1.180	0.40	1.01	.30
6	0.9	0.78	10.00	1.702	2.77	1.01	0.16
Group IV: Risk Portfolios with G of under 1.04 and S.D. of over 0.35 (0.29)							

line-to-line comparisons of the proportion of students choosing the risky portfolio. The portfolios in Groups I and II in Table 3 are matched as to S.D. by portfolios in Groups III and IV. In eight of the ten matched comparisons (line 14 versus line 3, line 11 versus line 5, etc.) the proportion of the students choosing the risk portfolio with the higher E is significantly larger than the proportion choosing the portfolio with the smaller E. The two exceptional cases (lines 12 versus 15 and lines 8 versus 4) were extremely risky portfolios in which the students apparently did not differentiate between the returns. The effects of S.D. on students' choices is more obvious but

can be made explicit by grouping portfolios by E and then making within-group comparisons of S.D. and proportions chosen.

Perhaps the most noteworthy of the results shown in Table 3 is the conservatism of the students. A majority preferred to hold the safe portfolio rather than the risk portfolio in no less than 4 out of the 10 choices where the risky portfolio gave a geometric mean return higher than that which could be obtained from the safe portfolio. The expected value of the returns from the risk portfolio in these cases ranged from \$1.36 to \$5.80 per dollar invested. In the long run the students who chose the risky portfolio would be almost certain to get a higher compound annual return from their portfolio than those who chose the safe portfolio.

This risk avoidance runs counter to the hypothesis that the geometric mean would be a good guide in forecasting students choices.

TABLE 4

NUMBER OF CHOICES OF RISKY PORTFOLIOS DISTRIBUTED BY G AND BY S.D.

STANDARD DEVIATION	GEOMETRIC MEAN RETURN Over 1.04	Under 1.04	TOTAL
Under 0.35.....	271	125	396
Over 0.35.....	148	108	256
Total.....	419	233	652

It is apparent from Table 4 that the choices among portfolios are implicitly or explicitly affected by both G and S.D. rather than by G alone, as would be the case if our second hypothesis were true. In Table 4 the number of choices of risky portfolios is dichotomized by whether the geometric mean return is over or under 1.04 and by whether the standard deviation of returns is under or over 0.35. The total number of choices of the five risky portfolios falling in each cell ranged downward from 271 for a G of over 1.05 and an S.D. of under 0.35 to 108 for the portfolios with a G of under 1.04 and an S.D. of over 0.35. This is strong evidence that the students liked returns as measured by G and disliked risk as measured by S.D.[7]

7. A breakdown of replies by class and by college and by the consistency of replies fully supports this finding. The test contains a number of pairs of risk portfolios which can be used to check the consistency of the replies. For example, the risk portfolio in line 7 (to be called "B7") gives a return equal to that of the portfolio in line 1 (B1) in a bad year and greater than B1 in a good year with good and bad equiprobable. A student could consistently prefer to hold portfolio A to both, could prefer both to A, or could prefer A to B1, and B7 to A; but it would be inconsistent for him to prefer A to B7 and also B1 to A. In all there are 10 such pairs of portfolios and 29 out of 74 students were inconsistent in their choices in one or more of these pairs. However, elimina-

Results also tend to contradict the hypothesis that people in general must be paid a premium to induce them to undertake moderate risks instead of subjecting themselves to either small or large risks. Consider the popularity of the two risk portfolios with the smallest standard deviation of returns (lines 14 and 3 of the original questionnaire). These portfolios give a geometric mean return of 1.05 and 1.03, with a standard deviation of only 0.10. Not only was the line 14 portfolio the most popular single risk portfolio, in spite of the fact that there were 8 other portfolios which gave a higher arithmetic and geometric mean return, but also the line 3 portfolio was preferred to the safe portfolio by over half the students of each of three classes in two colleges, in spite of the fact that the safe portfolio gave a higher arithmetic and geometric mean return. This would seem to indicate that a majority of these students liked moderate risks better than either safe or very risky choices.[8]

Finally, there is no evidence that a 0.5 probability with big risks (line 12) is preferred to either a small chance of big losses coupled with moderate gains in other years (line 8) or a small chance of making a large gain coupled with moderate losses in other years (line 16). No one of these possibilities was attractive to much more than one-third of the students, in spite of the fact that they offered above-average long-run returns.

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tion of all the replies of students making any inconsistent replies would not change the results materially. The pattern for the 0.5 probability portfolios with G's of over 1.04 arranged in order of increasing S.D.'s is as follows:

			Proportion Choosing Risky Portfolio	
Line	G	S.D.	Consistent	Total
14	1.05	0.10	0.87	0.84
11	1.07	0.22	.80	.76
9	1.05	0.22	.69	.72
20	1.07	0.36	.53	.54
7	1.07	0.90	.47	.47
12	1.07	5.70	0.33	0.32

8. The students' choices do not contradict Markowitz' triply inflected utility function, which is based on the observation that many wealth-holders like to gamble for small stakes but not for large (see Harry Markowitz, "The Utility of Wealth," *Journal of Political Economy*, LX [1952], 155).

NOTES ON THE MEASUREMENT OF INTERNATIONAL LIQUIDITY*

R. F. GEMMILL
Federal Reserve System

IN RECENT YEARS there have been frequent efforts to assess the adequacy of the supply of international means of payment.[1] However, few of the attempts included any examination of the problem of selecting a particular method of measurement. Because a given method of measuring liquidity necessarily implies something about the means by which liquidity may be increased, methodology is relevant both to a determination of the state of a country's international currency reserves and to a consideration of policies for improving the country's position. It is especially important for measuring and assessing changes in the aggregate world holdings of international means of payment. We shall examine certain questions of methodology and then show their significance to proposals for increasing the supply of international means of payment.

PROCEDURE FOR MEASUREMENT

The adequacy of international means of payment may appropriately be examined only in relation to a particular model of potential payments imbalance. Both the requirements for and the supplies of such means of payment may vary considerably with the particular kind of imbalance, and the reserves of a country or area may be adequate to meet exchange losses resulting from some developments (e.g., short recessions in major industrial countries) but inadequate to meet losses arising from others (e.g., crop failures).

Furthermore, adequacy of reserves can be discussed meaningfully

* The views expressed do not necessarily reflect those of the Federal Reserve System.

1. See, for example, "The Adequacy of Foreign Monetary Reserves," Commission on Foreign Economic Policy (Randall Commission), *Staff Papers*, February, 1954, pp. 476–85; "The Adequacy of Monetary Reserves," *International Monetary Fund Staff Papers*, III, No. 2 (October, 1953), 181–227; Roy F. Harrod, "Imbalance of International Payments," *International Monetary Fund Staff Papers*, III, No. 1 (April, 1953), 1–46; International Monetary Fund, *International Reserves and Liquidity* (Washington, 1958); Donald MacDougall, *The World Dollar Problem* (London: Macmillan & Co., Ltd., 1957); *Measures for International Economic Stability* (New York: United Nations, 1951); Robert Triffin, "The Return to Convertibility: 1926–1931 and 1958–?", *Quarterly Review* (Banca Nazionale del Lavoro), March, 1959; and "Tomorrow's Convertibility: Aims and Means of International Monetary Policy," *ibid.*, June, 1959.

only within the context of specific commercial and exchange policies, since restrictions on foreign-exchange payments may be substituted for reserve losses. The definition of adequate reserves will, therefore, vary considerably with the model used.[2]

Once a particular model of reserve drain has been constructed, a relatively simple method may be used to measure changes in the position of a country or a geographical area over time. The holdings of international means of payment by the country or area may be compared with the potential exchange drain hypothesized in the model. One may then compare ratios of such holdings to a measure of potential exchange drain for various years without having to reconstruct the entire model for each successive year. The ratio generally used for this purpose shows the percentage of a country's annual imports which are "covered" by its holdings of international means of payment. The same calculation may be made for a geographical area, using a ratio of holdings to imports from countries outside the area. As we shall show below, however, an entirely different basis of comparison is required in the case of a country acting as an international banker.

By themselves, comparisons of ratios of holdings to imports for various time periods do not throw much light on the question of adequacy of reserves, although these ratios are frequently used as the sole method of measurement. Furthermore, such comparisons have the unfortunate effect of focusing discussion on the merits of different base years, although it is clearly unjustified to assume that holdings in a particular period were adequate to meet all (or some) potential exchange drains merely because no crisis occurred.[3] The comparison between ratios for different time periods, in fact, constitutes an index-number approach to measurement and (in common with index numbers in general) is subject to severe limitations when underlying circumstances change significantly. In principle, use of this approach should be restricted to the measurement of short-term changes in reserves.

2. For discussions of the concept of adequacy see International Monetary Fund, *Staff Papers*, Vol. III, No. 2, and Randall Commission, *Staff Papers*, February, 1954, pp. 476–85. Relatively simple models of the sort appropriate for evaluating adequacy may be found in Randall Commission, *Staff Papers, op. cit.; Measures for International Economic Stability;* and MacDougall, *op. cit.* It is somewhat paradoxical that the models presented in these sources try to assess the exchange losses which might result from a recession in the United States, since, in the past two recessions, foreign countries as a whole added substantially to their holdings of gold and dollars.

3. Debate has tended to center on the relative appropriateness of 1928 and 1937 as bases for comparison with present supplies of international means of payment. Triffin has recently offered comparisons with 1913 as well, thus extending this necessarily inconclusive discussion (see "The Return to Convertibility," *loc. cit.*).

The construction of a model of a particular reserve drain and the calculation of ratios of holdings to imports are therefore not alternative methods of measurement; rather, they are complementary. An analysis of a country's reserve position for a recent year in relation to various specific types of foreign-exchange drains can provide a bench mark, and year-to-year changes in the reserve position may then be evaluated satisfactorily by some version of what we have termed the "index-number technique."

The Special Position of an International Banker

For a country acting as an international banker, an exchange drain may be unconnected with its current-account transactions, and a different basis for judging adequacy of reserves is required. Changes in a country's balance-of-payments position vis-à-vis those countries for which it acts as banker are most likely to be reflected in changes in its (short-term) liabilities to, or claims on, those countries, while changes in its balance of payments with countries for which it is not a banker will probably be reflected in changes in its holdings of international means of payment. If the country acts as banker for a large area, major shifts in its holdings are likely to stem from uncertainties regarding its position as banker; if it is banker for a small area, current-account transactions for the entire area with the rest of the world may be the best indicator of a potential decline in the banker's holdings of international means of payment.

Thus, depending on the type of exchange drain one is considering, time-series comparisons involving a country acting as an international banker should either (1) relate holdings of international means of payment by the entire banking area to the current-account transactions of the area with the rest of the world or (2) relate those holdings of the international banker available for settling liabilities to its liabilities.[4] In this latter case, for the United States, the appropriate measure is the ratio of the United States gold stock to foreign dollar holdings, and for the United Kingdom the measure is the ratio of United Kingdom gold and dollar holdings to sterling liabilities. If either the United States or the United Kingdom changed its policy with respect to the type of assets which it holds to meet claims by

4. An alternative method sometimes proposed—that of calculating the banker's assets minus short-term liabilities—focuses attention exclusively on the danger that all short-term claims will be presented for payment. The assumption and therefore the method appear unrealistic; in any situation in which all holders of short-term claims on a banker would seek payment, there would also undoubtedly be liquidations by holders of long-term assets and probably substantial capital flight by citizens of the country acting as international banker.

foreign countries, the measure for that country would have to be changed accordingly.

Holdings of International Means of Payment

The financial resources which should be included in calculating the positions of various countries with respect to international means of payment can be discussed here only in general terms, since a precise definition depends on the nature of the exchange drain. The holdings of most countries consist primarily of gold and liquid dollar assets, as well as sterling for those countries which maintain reserves in that currency. Most countries have additional resources which may be used to meet exchange drains; we shall note some of these below and also examine certain fundamental problems which arise in measuring a country's holdings.

Types of financial resources.—Total dollar holdings may generally be defined as short-term liabilities to foreigners (reported by banking institutions in the United States) plus estimated holdings of United States government bonds and notes. These data are published in the Federal Reserve and Treasury *Bulletins*. Less reliable data are available on other dollar assets held by foreigners. These other assets, however, are not so large, so liquid, or so likely to be accessible to the authorities, and their omission from estimated dollar reserves is unlikely to affect conclusions significantly. Some recognition should be taken of special cases, such as the United States corporate securities held by the government of the United Kingdom; but, where reliable reports on the value of such holdings are not available, it is generally advisable to keep estimates of holdings of securities separate from dollar holdings.

Sterling holdings of various areas, published in the *United Kingdom Balance of Payments,* consist mainly of "net holdings of sterling or sterling area currencies . . . with banks in the United Kingdom, British Government securities held for the account of banks and official bodies, and sterling funds held with Crown Agents for Overseas Governments and Administrations and by Currency Boards." Estimates of holdings by country—in some cases, rather rough estimates—can be derived from the data on foreign-exchange holdings of governmental agencies and banks, which are published by the International Monetary Fund.

Other resources may range from credits available under regional payments arrangements, such as the interim finance facilities available under the European Monetary Agreement, to swing margins

under bilateral payments agreements. It is clearly reasonable to include a country's potential claims on the International Monetary Fund in assessing the resources available to meet exchange drains, although such a calculation may well require assumptions about Fund policies and, conceivably, about the nature of other claims on the Fund. In order to include interim finance under the European Monetary Agreement and other more conditional resources in calculations of a country's resources, it is necessary to make rather specific assumptions as to the nature of the exchange drain; given such assumptions, there would appear to be no valid basis for omitting such claims.[5]

Net versus gross holdings.—Those claims likely to result in reductions in a country's holdings in the event of a particular type of payments disequilibrium should be deducted from the country's resources available to meet this type of disequilibrium. In addition, any portion of the claims on a country which represent commercial arrears should, in principle, be deducted from holdings, since such claims are purely substitutes for an actual reduction in holdings. In practice, it seems unlikely that time-series comparisons would be seriously distorted by the use of figures for gross dollar or sterling holdings, unless there were substantial shifts in the volume or composition of a country's dollar or sterling liabilities; if such shifts did occur, any time-series comparisons would be suspect.

Moreover, for a country which acts as an international banker it is essential to use gross short-term claims on that country as a measure of its liabilities. Claims by a banker on one ocuntry are not likely to be of use in meeting obligations to other countries; in fact, the existence of claims on a country may not even prevent the authorities of that country from employing all their claims against the banker to draw down the resources of the banker.

Official versus total holdings.—Computations of international currency resources sometimes employ only official holdings of certain specified types of assets and at other times both official and private holdings.[6] Where one assesses the volume of international currency relative to specific types of imbalance, the choice as to which concept is the more appropriate can readily be made in the selection of assumptions or in the definition of "adequacy." For time-series comparisons, the use of total holdings appears preferable.

5. See H. W. Arndt, "The Concept of Liquidity in International Monetary Theory," *Review of Economic Studies*, Vol. XV, No. 37.

6. The International Monetary Fund, for example, has consistently defined reserves as official holdings, while, in published Federal Reserve and Treasury statistics, official and private holdings of certain types of dollar assets are combined.

The principal reason for using total holdings in either approach to measurement is that private holdings are often a close substitute for official holdings; and if the measurement is associated with a concept of adequacy which implies continued movement toward increased convertibility of currencies, the substitution may be especially close. The main argument against including private holdings is that they are not always accessible to the authorities; however, such holdings may be mobilized by the authorities either indirectly through monetary and fiscal policies or directly by the introduction of exchange controls.

When both official and private holdings move in the same direction at about the same rate, use of either official or total holdings will yield approximately the same conclusion as to the extent of improvement or deterioration in the exchange position. When the two series do not move in the same direction or when they move at widely differing rates, neither series by itself provides a satisfactory measure. Given no change in official holdings, a decrease in private holdings represents a deterioration, and an increase represents an improvement, in a country's liquidity position, and this fact needs to be recognized. Where the choice is between treating private holdings on a par with official or ignoring them altogether, the former approach appears to involve less error.

Domestic cover requirements.—In about half the countries of the free world, the central bank is required by law to maintain reserves of gold or foreign exchange against specified liabilities, and in the remaining countries some such obligation on the part of the central bank has evolved as a matter of practice. For many countries, domestic and external requirements are of the same general order of magnitude. However, the two requirements are of rather different character and are not directly additive.

External requirements for international currency resources are met by funds intended to finance payments imbalances; to the extent that these imbalances are temporary, the resources will be replenished at some later date. On the other hand, domestic cover requirements are met by reserves to be held rather than spent, and the fact that these requirements can be, and have been, suspended means that international currency resources ostensibly serving as domestic cover may in practice be available to meet exchange drains.[7]

7. For example, in April, 1957, Belgium re-established cover requirements, under which an amount equal to about seven-eighths of the current gold reserves was to be held against note and deposit liabilities of the central bank. If one treated this part of the gold stock as unavailable to meet any payments emergency, one would have to conclude that Belgium's gold and dollar position (excluding the quota with the Fund) had deteriorated by over 60 per cent; yet there is no evidence that anyone reached this clearly unwarranted conclusion.

It is frequently argued that recognition by the central bank of an obligation to maintain or re-establish an appropriate relationship between its holdings of international means of payment and its liabilities may promote confidence in the country's currency. However, so long as a domestic cover requirement can be suspended, it represents merely one aspect of the general problem of maintaining confidence, and there is no appropriate method for disentangling domestic and external components of a country's reserves. The question of confidence is necessarily related to the nature of the hypothesized exchange drain, and allowance in calculating a country's holdings can most appropriately be made in the construction of the specific model.

Some Implications

We may now examine a few implications of the procedures outlined above. Because the position of an international banker is measured by a ratio of assets to liabilities, pooling arrangements can improve the position of the banker without resulting in a deterioration in the positions of other countries. The effect is analogous to the increase in liquidity of the domestic banking system arising from the transfer of cash from the public to commercial banks. A transfer of gold to an international banker will increase both the assets and the liabilities of the banker. Arithmetically, such an increase would represent an improvement as long as the banker's assets were less than its gross liabilities; however, this arithmetic property is quite in keeping with economic considerations, since pooling would be advantageous to the banker only as long as its assets were scarce relative to liabilities.

The holdings of other countries can be increased either by an increase in gold holdings or by an increase in claims on the international banker through a balance-of-payments surplus. Since the policy of the international banker with respect to its balance of payments is very likely to be dependent on its liquidity position, pooling arrangements involving a banker may well contribute indirectly to improvement in the positions of non-banking countries as well.

Despite the gains from pooling arrangements, deficits by international bankers cannot be counted upon indefinitely to provide a supply of international means of payment sufficient to prevent a potential shortage of international liquidity. Recognition of this fact and of the possibility that the annual additions to the monetary gold stocks of free-world countries may prove inadequate in some sense have led to proposals for special institutional solutions of an *ad hoc* nature and to more general solutions to the problem of over-all liquidity shortage through organized pooling by all countries of some

portion of their holdings of international means of payment. This latter approach was followed in increasing the quotas of the member countries of the International Monetary Fund. As long as the pooling countries do not count as liabilities the potential drawings of the amounts of their own currencies which they contribute to the pool (i.e., pay on their increased Fund quotas) and as long as countries count potential future drawings on the pool (i.e., Fund) as part of their available supply of international means of payment, such pooling arrangements represent a method of increasing supplies of international means of payment. The justification for a country's taking account of the potential addition to its assets without taking equal account of its potentially increased liabilities is the rationale for pooling—the country will draw on the pool when it is in need of resources, and other members of the pool will draw its currency only when its reserve position is strong and the increase in claims on the country is not a cause of concern.

The method we have proposed for measuring international liquidity provides a basis for evaluating proposals for increasing supplies of international means of payment as well as a basis for measuring changes in such supplies. As long as the volume of international means of payment is measured in relation to specific exchange drains, it is possible to develop a concept of efficiency in connection with any proposal for improving the liquidity position of a country or area. The efficiency of a given method of increasing liquidity is determined by the extent to which a country's position may be improved with respect to those potential drains for which it is inadequate without being improved with respect to potential drains for which it is already deemed adequate. The concept of efficiency derives its significance from the proposition that the volume of international means of payment can be too great, that is, that the danger of international inflation cannot be disregarded. If a country takes into account its holdings of international means of payment in formulating monetary and fiscal policies, increases in holdings may lead to more expansionary policies and to potentially inflationary conditions.

It will often prove more efficient to reduce the requirements for international means of payment than to increase the supply, and part of the assistance in some recent international stabilization programs (e.g., the 1958 program for France) has taken the form of postponement of some foreign obligations. Of the various methods of increasing the supply of international currency resources, increases in Fund quotas are among the most efficient. Under current Fund policies, the

second quarter of a country's quota may be drawn if the country is making "reasonable" efforts to achieve stability, and the third and fourth quarters only if the country has agreed to a stabilization program.

Thus the portion of a country's resources represented by its Fund quota is made available only after the country has taken steps to achieve internal and external financial stability. No such limitation applies where a country's resources are entirely in the form of gold and foreign-exchange balances. It would be reasonable, therefore, to assume that, in at least some instances, aggregate spending by countries with deficits would be lower if their resources were partly in the form of Fund quotas.

In addition, when the objective is to increase supplies of international means of payments generally, increases in Fund quotas will prove more efficient than the most commonly proposed alternative—an increase in the price of gold. A country's quota may be adjusted to correspond roughly to the payments problems with which it is likely to be confronted, while a higher gold price serves to increase the resources of gold-holding and gold-producing countries regardless of the adequacy of existing holdings or of potential requirements.

Changes may occur in the relative efficiency of different methods of increasing resources as the composition of these resources itself changes. As an increasing share of the Fund's resources becomes committed, countries that have not drawn on their quotas are less able to assume that the entire amount of their quotas may be made available in time of need. Thus, beyond *some* point, efforts to increase the supply of international means of payment exclusively by raising Fund quotas may become less efficient, at least with respect to certain types of potential exchange drains. Even after that point has been reached, however, an increase in Fund quotas may still be the most efficient method of increasing international currency resources.

We have shown that there are direct and important implications of using a separate method to measure the position of an international banker and of measuring supplies of international means of payment in relation to a specific potential exchange drain. The other principles of measurement outlined above are primarily useful in providing an accurate basis for measurement. For some countries the differences in results obtained from different methods of measuring supplies of international means of payment are many times the size of a substantial balance-of-payments surplus or deficit.

A NOTE ON REGIONAL DIFFERENCES IN DISCOUNT RATES

HOBART C. CARR
New York University

THE Federal Reserve Act requires the Board of Directors of the individual regional Reserve bank to fix the discount rate every "fourteen days or less if deemed necessary." It does not require, however, that the discount rate so set be the same as that fixed by all or any other of the Reserve banks. The Board of Governors, with its power of review and determination, could presumably produce uniformity by disapproving all rates failing to fit its preconceptions.[1] In practice, however, the Board of Governors has not generally carried its authority to such lengths, at least during the postwar period.

The "normal" time for a Reserve bank to decide the level of its discount rate would be during the meeting of the full board of directors. The schedule of regular meetings of the boards is as follows:

Boston	Alternate Mondays
New York	First and third Thursday
Philadelphia	First and third Thursday
Cleveland	Second Thursday
Richmond	Second Thursday
Atlanta	Second Friday
Chicago	Alternate Thursdays
St. Louis	Second Thursday
Minneapolis	Second Thursday
Kansas City	Second Thursday
Dallas	Second Thursday
San Francisco	Second Wednesday*

* Prior to 1954, met twice a month.

In order to meet the legal 14-day requirement, those boards meeting but once a month must make provision for fixing the discount rate between sessions. So must those boards meeting twice a month, since occasionally 3 weeks elapse between the last meeting of one

1. An example of "induced" conformity appears in the *Forty-fourth Annual Report* of the Board of Governors. On November 14, 1957, the board considered the actions of Richmond, Atlanta, and St. Louis in reducing the discount rate from 3½ to 3 per cent. These actions were approved. While these actions were being considered, the board was advised by the New York Reserve bank that it had fixed a rate of 3¼ per cent. The board voted not to act on this rate and so informed the New York bank. Before the day was out, the New York bank had fixed a 3 per cent rate and the Board of Governors had approved.

month and the first meeting of the next. Such provision is often made by delegating the authority to alter the rate to an executive committee which meets from time to time when the full board is not in session.

Evidence that a board of directors has consciously determined upon a different discount rate may be obtained from a study of the timing of changes in the rates. In such a study the dates of the regular meetings must be taken into account. If the lag between a move on the part of one bank and another is only 2 or 3 business days, it may reflect some difference between the two boards as to the timeliness of the change in the rate. On the other hand, it may also reflect a difference between regular meeting dates. If the regular board meeting is to take place in a few days, action may be deferred until then, even when the second bank is in hearty agreement with the first bank to make the move. Postponement of action beyond a few business days, however, is likely to reflect a lack of enthusiasm for the change, even though action is taken at the next regular meeting. After all, a special meeting of the board could be held, or the executive committee could take action. If a regular meeting of the board of directors (or, in those instances when the board meets monthly, a date 14 days after the regular meeting) passes without the rate moving into conformity, the lag probably reflects a judgment that the move by the other Reserve bank or banks was premature or mistaken.

Between the end of 1950 and July, 1958, there were fourteen changes in the discount rate, eight up and six down. Using these occasions to gauge the degree of regional agreement in discount-rate policy, it can be seen that some Reserve banks may be characterized as "leaders," some as "follow-the-leaders," some as "middle-of-the-roaders," and some as "dissenters." It should be noted, of course, that the data are an imperfect measure of regional agreement or disagreement, since the Board of Governors may hold up one or more applications for change in the rate until more come in and then approve all of them at once. Such action would obscure particularly any distinction between "leaders' and "follow-the-leaders."

In Table 1 the following definitions are used: "Leaders," those Reserve banks which moved first or shared with others the position of first in a change in the discount rate. "Follow-the-leaders," those which moved within 3 business days of the first change. "Middle-of-the roaders," those which took more than 3 days to catch up but did not postpone action beyond a week or the next regular meeting of the board of directors (or 4 days after a preceding regular meeting), whichever was later. "Dissenters," those which postponed action be-

yond a regular meeting of the board or which never agreed with the others.

Using 50 per cent of the occasions as the critical value, New York, Philadelphia, and Chicago are generally leaders; Boston is a "follow-the-leader"; and Richmond and Kansas City are "middle-of-the-roaders." The others may not readily be characterized, although the Minneapolis bank tops the list as a "dissenter."

It should be recognized that the meaning of "leaders," "follow-the-leaders," etc., in the sense implied by the above data is related directly to timing. A leader is one who moves first; a dissenter is one who moves last or not at all. In this sense, some of the characterizations may not indicate the degree of sympathy or agreement with the change. It is true that a leader in timing is, without doubt, favorably disposed toward the change, but a dissenter may not necessarily disagree with the direction, only with the size, of the change. It may be

TABLE 1

Reserve Bank	Leader	Follow-the-Leader	Middle-of-the-Roader	Dissenter
Boston	3	8	3	..
New York	8	4	1	1
Philadelphia	10	2	1	1
Cleveland	4	3	5	2
Richmond	3	3	7	1
Atlanta	4	5	1	4
Chicago	8	2	4	..
St. Louis	5	4	3	2
Minneapolis	5	3	1	5
Kansas City	4	3	7	..
Dallas	1	4	5	4
San Francisco	3	3	4	4*

* The San Francisco bank twice passed by a rate change.

well, therefore, to examine the dissents closely and to re-form the tabulation so as to indicate the degree of agreement with the direction of changes.

With regard to agreement with the direction of changes in the discount rate, those occasions when a Reserve bank failed altogether to change its discount rate are particularly subject to misinterpretation. On the surface, an action of this kind might appear as the most extreme kind of dissent from the policy followed by the majority. There is in fact, however, only one occasion when this interpretation would be correct—the failure of the San Francisco bank to reduce its rate from 3 to $2\frac{3}{4}$ per cent in late January or early February, 1958. All the other occasions were on upward movements in the rate and were preceded by a larger change in the rate than was instituted by the majority. For example, in September, 1955, the Richmond, Atlanta, and

St. Louis Reserve banks failed to change their discount rates, although all other Reserve banks did so. The rise in the rate at the eleven banks, however, merely brought their rates into line with the rate (2¼ per cent) which these three banks had set in August when all other Reserve banks raised their rates to 2 per cent.

In effect, then, the movement in which the dissenting bank or banks did not participate was one which brought the majority into step with the minority. It is not unreasonable, therefore, to reclassify such "dissenting" banks from the dissenter class to the leader class. In Table 2 this reclassification has been put into effect. (The San Francisco bank in the instance mentioned above remains a dissenter.)

TABLE 2

Reserve Bank	Leader	Follow-the-Leader	Middle-of-the-Roader	Dissenter
Boston	3	8	3	..
New York	8	4	1	1
Philadelphia	10	2	1	1
Cleveland	5*	3	5	1
Richmond	3	3	7	1
Atlanta	5*	5	1	2†
Chicago	8	2	4	..
St. Louis	6*	4	3	†
Minneapolis	6*	3	1	4
Kansas City	4	3	7	..
Dallas	1	4	5	4
San Francisco	4*	3	4	3*

* Includes one occasion when the Reserve bank passed up a change in the discount rate.

† Excludes one occasion when the bank changed its rate by a greater percentage than the others.

Two of the straightforward dissents—those involving lagged conformity—are similarly subject to misinterpretation. In these cases, two banks conformed with the direction of the movement in the rate with a lag of 3 weeks or so, passing up one or two regular board meetings during that time; but when they made the change, it was larger than that put into effect by most of the other banks. To allow these actions to remain as dissents would obscure the measure of agreement with the direction of the change. On the other hand, reclassification elsewhere would disturb the meaning of that classification. For example, if these actions were reclassified into the leader class, they would be indistinguishable from those occasions when another Reserve bank both changed its rate by a greater per cent than the majority and changed it first. In a compromise solution, these two actions have been dropped altogether from Table 2.

No change of significance has been made in the status of the Re-

yond a regular meeting of the board or which never agreed with the others.

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serve Banks by the reclassification, but a meaningful basis for examination of the change in status produced by classifying the banks' actions according to the direction of movement has now been laid. In Table 3 this change in the classification system has been made.

In summary the results are these:

1. Boston is a follow-the-leader on both up and down movements.
2. Chicago and New York continue as leaders. The latter is more clearly so on the down side than on the up, while the reverse is true of the former.
3. Philadelphia's leadership status is maintained.
4. While Richmond continues as a middle-of-the-roader, Kansas City is revealed as among the leaders on the up side and as a middle-of-the-roader on the down.
5. Leadership status on the up side, in addition to Kansas City, New York, Chicago, may be accorded to Cleveland, Atlanta, and Minneapolis.
6. Dallas shows up as a follow-the-leader on the up side.
7. Atlanta becomes a follow-the-leader, Cleveland a middle-of-the-roader, and Dallas, Minneapolis, and San Francisco clear dissenters on the downward movements of the discount rate.

TABLE 3

DIRECTION OF DISCOUNT-RATE MOVEMENT

	Up				Down			
Reserve Bank	Leader	Follow-the-Leader	Middle-of-Roader	Dissenter	Leader	Follow-the-Leader	Middle-of-Roader	Dissenter
Boston	2	5	1	..	1	3	2	..
New York	4	2	1	1	4	2	..	..
Philadelphia	6	1	1	..	4	1	..	1
Cleveland	5*	2	1	..	..	1	4	1
Richmond	2	2	4	..	1	1	3	1
Atlanta	4*	2	..	1†	1	3	1	1
Chicago	5	1	2	..	3	1	2	..
St. Louis	3*	3	1	†	3	1	2	..
Minneapolis	4*	3	..	1	2	..	1	3
Kansas City	4	2	2	..	..	1	5	..
Dallas	1	4	3	..	..	..	2	4
San Francisco	3*	2	3	..	1	1	1	3*

* Includes one occasion when the Reserve bank passed up a change in the discount rate.

† Excludes one occasion when the bank changed its rate by a greater percentage than the others.

Table 3 may also be used to help answer another question, namely, Are any of the Reserve banks more inclined to be sensitive to inflation threats than to deflation, or vice versa?

In answering this question, both leadership and quick response to the moves begun by others are, of course, the pertinent qualities; but a dominant position of dissent like that taken by Dallas, Minneapo-

lis, and San Francisco must also be taken into account. It appears reasonable, in fact, to count such disagreements as evidence of a predilection for moves toward the other side. However, only Dallas, Minneapolis, and San Francisco afford any strong evidence on the point. After all, a given Reserve bank is bound to feel occasionally that a particular move, whether up or down, is ill-timed. Perhaps it may feel more often that the timing is improper, but, without a clear predisposition toward one side or the other, its dissents will be cyclically balanced.

On this basis the Reserve banks can be classified into three categories: (1) leaning toward anti-inflation moves, (2) leaning toward antideflation moves, (3) cyclically neutral. The results follow.

1. *Leaning toward anti-inflation moves.*—San Francisco—combines leader plus follow-the-leader positions on the increase with a dissenting position on the down side; Cleveland—combines leader position on rises in the discount rate with middle-of-road position on decreases; Minneapolis—combines leader position on rises with dissenter position on decreases; Kansas City—like Cleveland and never leads or shares the lead in decreasing the discount rate; Dallas—frequently dissents on the down side, follows the leader on the rise, and never leads or follows quickly on the fall.

2. *Leaning toward antideflation moves.*—None.

3. *Cyclically neutral.*—Boston—favors rises, but too slightly to be significant; New York—favors decreases, but too slightly to be significant; Philadelphia—almost exactly balanced; Richmond—closely balanced; Atlanta—favors rises slightly, leads on rises, and follows on declines, but not significantly; Chicago—almost exactly balanced; St. Louis—closely balanced.

Use of this analysis to judge which Reserve banks will lead and which will follow is hardly possible with any degree of precision. Yet the August–September, 1958, round of changes in the discount rate confirmed to some degree the generalizations indicated by the record of the previous fourteen rounds, despite the fact that this change was the most controversial since 1950, judging by the eight dissents. Of the four banks which did not dissent, three—San Francisco, Kansas City, and Dallas—were among the five banks classed as leaning toward anti-inflation. The fourth—Atlanta—was classified as cyclically neutral, although it was noted that Atlanta's record hinted at some slight favoring of increases. Among the eight disesnting banks, New York's action fits the historical pattern, and the actions of the Philadelphia, Richmond, Chicago, and St. Louis Reserve banks do not

contradict it. On the other hand, the dissents by Cleveland and Minneapolis could not have been expected on the basis of past behavior. Also, the fact that the Boston bank held out longest—over 5 weeks—was entirely out of keeping with its previous actions.

The next three changes in the discount rate—all upward—generally conformed to the pattern indicated by the tabulation. Inclusion of these changes would show the Dallas and Minneapolis banks as more clearly leaning toward anti-inflationary moves. The positions of the Cleveland and Kansas City banks are altered by the inclusion. Similarly, the position of cyclical neutrality of seven other banks is not disturbed by inclusion. On the other hand, the position of one of the banks, the San Francisco, would have been less clearly anti-inflationary, had the changes been included. No bank dissented on any of these changes.

Putting aside any question of intepretation of the data, the larger question of why there are differences in the discount rates remains. The answer is difficult to find and falls outside the scope of this analysis. It may lie in the personalities of the presidents, directors, and staffs of the various Reserve banks; the traditions among the Reserve banks (New York especially, and Philadelphia and Chicago have traditionally been leaders); and the differences in regional economies (the West and Far West are expanding more rapidly than the rest of the country; the industrial and social organizations of the Minneapolis District are dissimilar to those of the New York District). But such a generalization leaves many questions unanswered. For example, does a tradition of leadership have its roots in the behavior of the regional economy in the area where leadership is exercised? Another question: Is the locus of leadership changing with changes in the relative importance of regional economies?

After such questions are answered, a question of even greater importance may be approached: Are regional differences in discount rates useful for any purpose other than as an indicator of dissension among Reserve banks as to the course of economic activity and appropriate credit policy?

ABSTRACTS OF DOCTORAL DISSERTATIONS

AN EMPIRICAL TEST OF GUIDES TO SELECTION OF INDUSTRIAL COMMON STOCKS FOR INSTITUTIONS*

STEPHEN H. ARCHER
University of Washington

THE PROBLEM confronting some financial institutions, which will perhaps become more serious in the future if their investments in common stocks expand, is to find guides to the selection of common-stock issues other than that of confining purchases to the favored "blue-chip" issues. The purpose of this study is to test empirically potential selection guides for their association with investment performance. A group of over four hundred industrial stock issues was selected for study. The investment performance of each of these issues was measured as stock-price appreciation plus cash dividends, with both adjusted for stock dividends, stock rights, and stock splits. The periods investigated were 1940–55, 1945–55, and 1950–55.

Certain characteristics of the stocks were compared to their investment performance. These characteristics were (1) the percentage of earnings reinvested in the 5 years prior to the period under investigation; (2) the relative size of the company within its industry, as determined by total assets in the base year of the period; (3) the ratio of earnings to stock price in the base year; (4) leverage in the financial structure, as measured by the percentage of long-term debt to this debt plus net worth; and (5) a projection factor—the influence of past investment performance of the stock (5 years prior to the period) on its future performance. These five characteristics were considered as independent variables, while the investment performance of the stock was the dependent variable.

Multiple, partial, and simple correlation coefficients were calculated to determine the degree of association between the independent variables and the dependent one. The coefficients of multiple correlation, R, are presented in Table 1 along with their respective confidence limits and the coefficient of determination, R^2. Though the co-

* A dissertation completed at the University of Minnesota, 1958.

efficients in each period may be significant, it can be seen from the coefficients of multiple determination that the five independent variables explained only 21, 8, and 5 per cent, respectively, in the three periods.

The partial correlation coefficients, r, computed with their respective confidence limits and coefficients of partial determination, r^2, are presented in Table 2. These data show that the independent variables

TABLE 1

MULTIPLE CORRELATION

Period	R	Ninety-nine Per Cent Confidence Limits	R^2
1940–55.....	0.46	0.34–0.57	0.21
1945–55.....	.28	.16– .40	.08
1950–55.....	0.22	0.09–0.34	0.05

TABLE 2

PARTIAL CORRELATION

Independent Variable	Time Period	r	Ninety-nine Per Cent Confidence Limits		r^2
Per cent earnings reinvested.	1940–55	+0.11	−0.03–	0.26	0.01
	1945–55	+ .11	− .02–	.24	.01
	1950–55	+ .06	− .07–	.19	.00
Size in industry.....	1940–55	− .14	− .28–	.01	.02
	1945–55	+ .06	− .08–	.19	.00
	1950–55	+ .06	− .07–	.19	.00
Earnings-price ratio.....	1940–55	− .35	− .48−−	.22	.12
	1945–55	+ .09	− .04–	.23	.01
	1950–55	+ .11	− .02–	.24	.01
Leverage.....	1940–55	+ .28	+ 15–	.42	.08
	1945–55	+ .09	− .04–	.22	.01
	1950–55	+ .03	− .10–	.16	.00
Projection.....	1940–55	− .01	− .15–	.14	.00
	1945–55	− .05	− .18–	.08	.00
	1950–55	−0.05	−0.18–	0.08	0.00

of projection, relative size of the company, and per cent of earnings reinvested explained negligible amounts of variance in the stocks' investment performance. In the period 1940–55, significant partial correlations existed for the leverage and earnings-price ratio variables, but even here the proportion of the variance explained was not large.

These results suggest, but do not prove, the lack of association between the independent variables and the dependent one. The results suggest the need for further investigations of other independent variables and time periods.

FACTORS AFFECTING EQUITY FINANCING OF LARGE AMERICAN INDUSTRIAL CORPORATIONS, 1946–56*

OSWALD DONIECE BOWLIN
The Pennsylvania State University

EQUITY ISSUES HAVE made up only a small proportion of total long-term external financing by corporations in the United States since the end of World War II. This caused much discussion, especially in the early part of the period, concerning the factors affecting corporate financing. Since the extent of external equity financing varied considerably from 1946 through 1956, a study of corporate financing during that period may disclose the important determinants of such financing.

The ratio of external equity financing to total long-term external financing by large industrial corporations displayed greater variation than did the ratio for all corporations. The purposes of this thesis are (1) to determine the most important factors causing the fluctuations in the amount of equity issues and in the ratio of equity issues to total long-term issues by large industrial corporations in the period 1946–56 and (2) to determine the way in which each of these factors affected equity issues in the period. The data for the study came primarily from a random sample of one hundred firms taken from the list in *Fortune Magazine* of the five hundred largest industrial corporations in the United States in 1955. Since all the preferred stock issues by the corporations were found to include predominantly creditorship covenants, equity issues as defined in the thesis include only common-stock issues.

Although debt issues accounted for a large proportion of total issues, the ratio of aggregate equity capital to the total assets of all the corporations was sustained throughout the period by the high level of retained earnings in most of the years. An adequate equity buffer, low financial charges, and good earnings during most of the period meant that debt financing could be used predominantly to obtain any outside capital that was needed without incurring an excessive amount of financial risk.

Four factors seem to explain most of the variation in equity issues

* A dissertation completed at the University of Illinois in 1959.

from 1946 to 1956: (1) price-earnings ratios (estimated by lagging Moody's averages for 125 industrials by three months); (2) earnings rates of the corporations (measured by dividing the aggregate earnings after all expenses but before interest and income taxes by the total assets of all the corporations); (3) the income and profits tax changes of 1950; and (4) changes in the total amount of external financing caused by outside factors such as the Korean War. The amount of capital obtained through equity issues was positively correlated with each of the above factors, except the tax changes of 1950.

The amount of external equity financing was apparently more sensitive to changes in price-earnings ratios than to changes in any other single factor, but the ratio of total equity issues to total long-term issues was more closely correlated with the rate of return as defined above. If everything else remained the same, an increase in earnings rates reduced the amount of outside capital needed but improved the market conditions for stock issues. This tended to cause a reduction in debt financing but an increase in equity issues.

COMMERCIAL-BANK TREATMENT OF BAD-DEBT LOSSES: RELATIONSHIP TO ECONOMIC AND ACCOUNTING CONCEPTS OF INCOME MEASUREMENT AND EFFECTS OF FEDERAL INCOME TAX REQUIREMENTS

JOHN THOMAS BURKE
Syracuse University

THE REQUIREMENTS of the federal income tax regulations have historically determined the procedure followed by commercial banks in handling bad-debt losses. No specific procedure was established by the Bureau of Internal Revenue before late 1947, and banks usually charged off accounts on a current basis when they were deemed uncollectable. The bureau established a formula in December, 1947, that could be used for setting up valuation reserves to provide for the treatment of bad-debt losses. A supplemental ruling was issued during 1954 which provided an alternative bad-debt formula. These rulings have not been completely accepted by bankers; they have been criticized as inadequate and not in conformity with historical bad-debt-loss experience.

This study was undertaken to determine the significance and relationship of the bad-debt deduction to commercial-bank income and to determine the basis for the bad-debt deduction that would result in the most accurate measurement of income.

The amounts and timing of bad-debt losses were found to be one of three major influences on bank earnings before income taxes. Therefore, it was considered of utmost importance that the correct amount be used as the deduction to determine annual net income before income taxes.

The financial structure and operating results of all insured commercial banks in the United States were examined. A study was made of thirty-four commercial banks, and the percentage ratios for the two groups were compared, with special emphasis on the relationship of bad-debt losses. The study of all insured commercial banks revealed the close relationship between bad-debt charge-offs and net profits after income taxes. Income measurement was considered an

* A dissertation completed at Michigan State University in 1958.

accounting problem, which, when employed for income measurement by commercial banks, was determined to be in little conflict with the economist's definition.

The historical methods employed for bad-debt charge-offs, the present methods allowed for tax purposes, and the methods proposed by banking groups were all found to be in conflict with proper income determination. The problem of faulty income determination caused by emphasis on valuation was discovered to be a major cause of conflict between the past, present, and proposed bad-debt charge-off methods.

A recommendation was made that the reserve method be used and that the bad-debt experience factor formula for each bank should be computed upon the individual bank's experience. The formula would emphasize income determination rather than asset valuation. It was recommended that the bad-debt experience factor formula be based on a shorter priod of time than the 20 years now used, in order more closely to associate the experience factor with current operations rather than with past experience.

INSTITUTIONAL LENDERS IN A LOCAL RESIDENTIAL MORTGAGE MARKET, LOS ANGELES COUNTY, 1946–51*

CLAYTON C. CURTIS
University of Florida

THE FIELD of residential mortgage lending may be approached from several directions. One fruitful approach is to subject a particular market to careful study over a period of years. The purpose of this study is to describe and analyze the residential mortgage lending activities of a selected group of institutional lenders in Los Angeles County during the period 1946–51. The three institutions selected for study were savings and loan associations, commercial banks, and life insurance companies.

The demand for mortgage credit is a derived demand, having its roots in the demand for residential dwelling units. In order to understand the major demand forces in the Los Angeles County residential credit market during the 6-year period, it was necessary to investigate briefly the county's housing market, including changes in population and families, income payments, and prices. The general direction of change of these variables supported the view that, for the period as a whole, demand pressures were high.

To place the method and scope of this study in perspective, a review of the literature on mortgage finance was made, with special emphasis on works dealing with local markets or institutional lenders. Certain individual market studies were compared with the Los Angeles County market. The body of the study showed clearly that generalizations about local markets made on the basis of aggregate data are risky. The comparison of the Los Angeles market with other markets showed that it is equally dangerous to apply conclusions about lender behavior obtained from a study of one market to another local market.

Each of the three major institutional lenders operating in the county during 1946–51 was investigated separately in detail. The attempt was to uncover the important variables which influence decision making in the residential mortgage lending field. The nature

* A dissertation completed at Indiana University in 1959.

and function of each group had a significant impact on the volume and kinds of lending done by each group.

There are several other factors which affect in varying degrees the mortgage lending by these institutions. Some of the more important factors are the size of the firm and the size of the market in which it operates, money-market changes, the volume of savings accumulated by the institution, the number of branch offices, the historical background of the institution, and the lending philosophies of individual firm managers.

From the comparison of other markets with the Los Angeles County market, a hypothesis was advanced relating the structure of a local market to the volume of FHA-insured and VA-guaranteed loans made in that market. The hypothesis was subjected to a crude test and was tentatively substantiated. Several possible solutions to the problem of differential availability of FHA and VA funds among markets because of varying market structure were discussed, and two suggestions were advanced for further research. One suggestion looks hopefully to additional local-market studies to verify and extend the conclusions of this study. The second proposes a series of studies of individual leading firms as one approach to the problem of understanding management attitudes toward mortgage lending and differences in these attitudes among similar firms.

EFFECTS OF GENERAL CREDIT CONTROLS ON NON-FARM RESIDENTIAL CONSTRUCTION*

COLDWELL DANIEL III
Mississippi Southern College

CHANGES IN NON-FARM residential mortgage credit conditions have significant effects on the volume of non-farm residential construction from one short period to another. But yearly variations in the direction or rate of change in such construction are dependent upon many other factors, of which income, population, tastes, liquid assets, and expectations seem to be the most important. The effect of changes in any of these variables may be, and has been, offset by changes in one or more of the others.

The determination of the price, terms, and availability of non-farm residential mortgage credit may be described in terms of the demand for and the supply of such credit. The demand for non-farm residential mortgage credit is determined by, and varies directly with, expenditures on non-farm housing fees. The suppliers of non-farm residential mortgage credit, for the most part, consist of financial institutions. The quantity of such credit supplied at a given price is determined by (1) the legal restraints on the portfolio practices of financial institutions, (2) the attitudes of financial institutions toward liquidity and solvency, and (3) decisions of financial institutions based on the yields of alternative investments. However, in considering the influence of general credit controls on the supply of non-farm residential mortgage credit, it would seem appropriate to assume that the first two factors remain constant.

The net effect of an increase in the relative yield on non-farm residential mortgage credit is an increase in its supply; and the net effect of a decrease in the relative yield on non-farm residential mortgage credit is a decrease in its supply. However, because of the "stability" of the yield on non-farm residential mortgage credit, an increase in the relative yield on such credit is brought about by a fall in the yield on alternative investments; and a decrease in the relative yield on such credit is brought about by a rise in the yield on alternative investments. But the yield on alternative investments rises when general credit conditions are tight and falls when general credit condi-

* A dissertation completed at the University of Virginia in 1959.

tions are easy. Thus the net effect of tight general credit conditions is a decrease in the supply of non-farm residential mortgage credit; and the net effect of easy credit conditions is an increase in the supply of non-farm residential mortgage credit.

In practice, the effects of changes in other variables do not cancel out. Tight general credit conditions are associated with high or rising incomes, which in turn are associated with increased savings. Moreover, during such times, the liquidity "requirements" of financal institutions decline. Thus, during tight general credit conditions, the supply of non-farm residential mortgage credit, instead of decreasing absolutely, may simply increase less than the supply of credit in general. It does not appear, however, that during contractions in general business a decline in the flow of savings and an increase in the liquidity "requirements" of financial institutions offset the net effects of easy general credit conditions on the supply of non-farm residential mortgage credit.

As income rises, expenditures on non-farm housing fees tend to rise more rapidly than the supply of non-farm residential mortgage credit. Consequently, non-farm residential mortgage credit conditions become tight. Conversely, as income falls, expenditures on non-farm housing fees tend to fall, resulting in an ease in non-farm residential mortgage credit conditions.

Ultimately, changes in general credit conditions are traceable to the policies of the Federal Reserve System. Thus general credit controls affect general credit conditions, which, in turn, affect the volume of non-farm residential construction.

AN ECONOMIC STUDY OF RESEARCH AND DEVELOPMENT EXPENDITURES IN THE UNITED STATES SINCE WORLD WAR II*

GINO PAUL GIUSTI
Texas Gulf Sulpher Company

THIS DISSERTATION (1) presents monetary historical information on research and development expenditures in the United States from World War II to the present; (2) establishes the annual expenditures by the federal government, industry, and colleges, universities, and other institutions on research and development; (3) establishes the annual performance of research and development by each of the three groups; (4) determines the proportion of total research costs per research scientist and engineer employed that was made up of research salaries and total labor costs; (5) determines the movement of industry's research and development expenditures as compared with movements in some business barometers and some business expenditures; and (6) presents some information and thoughts on basic research.

To pursue the first three aims, data were assembled on expenditures for research and development by each group. These gave the total annual expenditures and performance of research and development in the United States. The performance by each group was determined by using the total figure as a guide.

In analyzing the fourth point, estimates were made on the cost of performing research per research scientist and engineer employed. Then, by determining the average salary of research engineers, its proportion to the total cost was estimated. The proportion of the total cost attributable to supporting personnel was also estimated. The two together comprised the total labor cost per researcher employed.

To accomplish the fifth aim, comparisons were made between historical data reflecting industry's research and development expenditures and GNP, manufacturing sales, the Federal Reserve Board index of industrial production, expenditures for new plant and equipment, and advertising outlays. The growth of each item was noted along with its annual percentage change. These comparisons showed

* A dissertation completed at the University of Pittsburg in 1959.

that since World War II industry's research and development expenditures have maintained a relatively faster pace and that all the items, including research and development expenditures, fluctuated with the cyclical movements of the economy.

To develop the final aim, data were presented on basic research: who performs it, how much is performed, and who pays for it. Recommendations pertaining to this important phase of research were also included.

The study found that the nation's research and development expenditures increased from less than $2 billion in 1946 to over $8 billion in 1959. Of the total current research and development expenditures, a little over half originated with the federal government. Colleges, universities, and other institutions supported about 3 per cent, and industry made up the balance. On the performance side, industry was responsible for about 71 per cent, the federal government 18 per cent, and colleges, universities, and other institutions 11 per cent.

Less than 10 per cent of the nation's total expenditures on research and development is devoted to basic research. Of the total expenditures for basic research, industry contributed over 40 per cent, the federal government over 35 per cent, and colleges, universities, and other institutions about 25 per cent. With respect to performance, the three groups conducted 35 per cent, 15 per cent, and 50 per cent, respectively.

It was estimated that from 1946 to 1953 labor costs increased at about the same rate as all other costs in research and development; therefore, labor costs were not any more responsible than other costs for the increased total costs of research and development per researcher employed. It was determined, further, for the same period and on a constant dollar basis, that there was practically no change in the cost of performing research and development per researcher employed.

PUBLIC FINANCING FOR SMALL CORPORATIONS*

VINCENT M. JOLIVET
University of Washington

ALTHOUGH THE difficulties encountered by small corporations in raising long-term capital have long been recognized and many suggestions have been made to alleviate these difficulties (one of which culminated in the Small Business Investment Companies), very little has been written on one of the major potential sources of such capital—public sale of securities. This study is a comprehensive treatment of public stock financing for small corporations. It is based principally on case studies obtained in the field by the author but also on mail surveys, a study of appropriate prospectuses, and published materials.

The first part of the study considers the desirability and feasibility of public stock financing. Among the advantages found for such financing were the value of raising permanent funds without fixed charges or restrictions; the resulting improvements in credit rating and increase in borrowing power; the creation of a market useful in "unfreezing" the investment of old stockholders and helpful in settling estates; the ability to allow employees to participate in ownership; the facilitating of future sales of securities; the creation of a sounder basis for stock options; the use of a marketable security helpful in the acquisition of other companies; the value of the publicity received; and the management development which takes place as a result of the undertaking. Disadvantages of such financing included the high cost of flotation and the cost of capital; the assumption of new responsibilities; the time and effort involved; and sometimes the uncertainty of obtaining the desired funds.

An almost complete lack of understanding of public financing and unjustified fears of loss of control were found among presidents of many corporations which were in a position for public financing but had never attempted it. Often the corporation presidents were unaware that the possibility even existed. In an attempt to remedy this situation, the author developed broad criteria by which the feasibility of public financing for individual companies could be appraised. For Regulation A issues ($300,000 or less), strong growth potential is

* A dissertation completed at Harvard University in 1957.

much more important than established earnings, although sales should be approaching at least $1,000,000. Companies contemplating Regulation C issues (over $300,000) typically need established earnings of $100,000 or more, as well as some growth potential, although the latter need not be so strong as for Regulation A issues. Other criteria concerning assets, earnings, sales, net worth, and use of proceeds were also suggested.

The main body of the study is devoted to an examination of the various steps required in public financing, with recommendations concerning each one. Important differences exist between Regulation A and Regulation C issues, and the issuer should be aware of these. The first step—perhaps the most important one and certainly the most difficult—is the choice of an underwriter. Few investment bankers are interested in this type of financing, but "shopping around" is frowned upon by the banking fraternity. The author developed a step-by-step procedure based on survey results which can be used to pre-select an underwriter before actually contacting him. Other steps of public financing include the determination of the size of the issue; the type of security to be sold and the price; underwriting terms and compensation; legal preparations and compliance with SEC regulations and Blue Sky laws; the prospectus; timing; and long-term preparations for public financing.

INVESTMENT DECISIONS AND THE ELECTRIC POWER INDUSTRY*

JACK ALLYN MCENROE
Central Hudson Gas & Electric Corporation

THIS STUDY IS divided into two parts: (1) the development of a general framework to evaluate investment decisions and (2) the application of the framework to the electric power industry with the aid of a case study. The study was based on the belief that there is a need to investigate decision making in industry and to accumulate case studies on investment decisions.

It is suggested in this study that the significance of the marginal efficiency of capital is overemphasized as a general determinant of investment in all industries. Institutional patterns, sales stability, and the uncertainty attached to a sales estimate tend to temper the importance that the decision-maker attaches to the prospective volume of profit. Also the significance of the marginal efficiency of capital as a determinant of investment varies from industry to industry, depending on the market structures and institutional patterns found among industries. The most important generalization suggested by the study is that the uncertainty of a profit expectation stems from the sales estimate, based upon an expectation of future income levels, and that this estimate affects the profit calculation.

More specifically for the electric power industry, it is concluded that the determination of the future volume of investment can be made earliest by analyzing the sales expectations of the firms in the industry. A review of the factors generally considered vital in the investment decision, along with the observations made in this study, indicates that cost and profit are variables rather than fixed factors in the decision. Most adverse effects caused by uncertainty are minimized by prospective price adjustments or because the demand levels obtained are stable through time. Consequently, the expected volume of profit, the interest cost of the expansion, and other general costs of operation may be regarded largely as extraneous in the decision to invest. The short-run demand schedule, which is inelastic with respect to price; the obligation to serve; the relative immunity of the sales level to income declines; and managerial desires for the continuity of the firm make the sales expectation the significant factor in the decision to invest in the electric power industry.

* A dissertation completed at Syracuse University in 1959.

CONSUMER CREDIT INSURANCE IN NEBRASKA*

JOHN B. MINICK
University of Nebraska

SINCE WORLD WAR II, there has been a very rapid increase in the use of life and disability insurance in connection with consumer credit transactions. This special type of insurance, called "consumer credit insurance," names the credit-granting institution as the first beneficiary and provides that an insured person's debt will be paid in full if he should die or that periodic instalments will be paid if he should become disabled. It is divided, thus, into two major categories: credit life insurance and credit accident and health insurance. Credit granters can make the insurance available to their customers by offering individual policies or by offering certificates of insurance under a group policy. In either case the insurance is issued without benefit of a medical examination, with no restrictions for physical impairments or occupational hazards and with a uniform charge regardless of the debtor's age.

Individual credit life insurance policies were first writen in 1917 for the benefit of loan customers of Morris Plan banks. Group policies were introduced in 1926, and accident and health coverage was developed in the late 1930's. The amount of credit insurance in force increased vastly following World War II, and it is now written by more than 350 insurance companies. Its recent growth is attributed to the increased use of consumer credit, the benefits provided by the insurance, the number and variety of creditors offering it, the public's desire for security, and the enactment of favorable state legislation.

In Nebraska, credit insurance is made available by virtually all consumer finance companies, industrial loan and investment companies, sales finance companies, and credit unions. It is also offered by most banks and by a few retail stores. There are many indications that the majority of consumers desire to protect their debts with credit insurance. It was found, through a mail survey conducted among 1,000 Nebraska residents, that 53 per cent of those who had no experience with the insurance and 95 per cent of those who had would choose to purchase credit insurance in connection with a future debt.

* A dissertation completed at the University of Southern California in 1959.

Consumer credit insurance is incompletely regulated in Nebraska by a variety of laws, most of which apply to a single type of credit-granting institution. Despite this situation, abuses of the insurance either are minor in nature or occur infrequently.

The abuses that do occur could be further reduced if the various laws were replaced by a comprehensive act regulating all credit insurance. Such a law should authorize the department of insurance to establish maximum charges for credit insurance sold in the state. A ceiling over charges would automatically limit the compensation received by creditors selling the insurance. The law should also specify that (1) coverage must never exceed the amount of the debt or the term of indebtedness, (2) creditors must give insured persons a copy of the policy or a statement describing the coverage, (3) insurance must be canceled and unearned charges refunded when debts are prepaid or refinanced, and (4) debtors must be permitted to acquire the insurance from sources other than the creditor.[1]

1. A consumer credit insurance law containing all these provisions was passed by the legislature of Nebraska, sixty-ninth session, on June 25, 1959, and became effective on September 28, 1959.

INTERNATIONAL FINANCE AND NEW YORK: ROLE OF OUTFLOW OF PRIVATE FINANCIAL CAPITAL FROM UNITED STATES IN DETERMINATION OF SIGNIFICANCE OF NEW YORK AS CENTER OF INTERNATIONAL FINANCE*

JAMES W. NORDYKE
Kenyon College

THIS DISSERTATION is composed of two main parts: (1) a theoretical discussion of the causes and consequences of the centralization of international finance in New York and (2) a description of the methods by which private financial (that is, non-direct) capital is currently exported from the United States.

Since 1946 the volume of foreign-owned, dollar-denominated, short-term financial assets held primarily in New York has increased from less than $5 billion to more than $13 billion. This suggests that New York is becoming increasingly important as a center of international finance, that is, that institutions in New York are coming to be increasingly used for the exchange of financial assets between entities of different countries and for the holding of financial assets by foreigners.

The increasing importance of New York as a center of international finance can be considered either as (1) the latest step in the historical process in which the center of international finance has shifted from London to New York; (2) posing a policy problem, as a part of which the United States must weigh the advantages and disadvantages of containing a center of international finance; (3) a result of an inherent tendency of finance, impelled by laissez faire forces, to become centered; (4) a phenomenon to be explained by economic location theory; or (5) an international example of the working of the principle of comparative advantage.

This dissertation adopts in turn each of these approaches. The following conclusions result. There are discernible laissez faire economic forces which promote the centralization of finance. These

* A dissertation completed at Princeton University in 1959.

forces will encourage the establishment of a single predominant center of international finance. The United States possesses national economic and financial characteristics that make it the nation most likely to contain such a center. If such a center is to be established in the United States, New York will be the site. The existence of the center within the United States will not be of significantly large net direct advantage or disadvantage to the United States. But the center will be useful to the world as a whole. One factor which will affect the usefulness of the New York center to the nations and firms using it will be the ability of the United States to export private financial capital. A consideration of the methods by which and amounts which such capital is and has been exported indicates whether this ability is likely to exist to a significant extent.

The export of private financial capital from the United States, chiefly by or through institutions in New York, occurs in a variety of forms. Commercial banks have been among the chief suppliers of this capital. The major portion of their supply has been provided through the activities of United States exporters and importers or in co-operation with other financial institutions, foreign and domestic, public and private. In addition to commercial banks, other financial firms—foreign financing corporations, factors, commercial finance companies, and specialized export-import finance companies—have supplied small amounts of capital for international use. Investment companies have begun in a small way to purchase foreign securities, which have also been purchased in increasing amounts by other Americans. The total amount of private financial capital exported since 1946 has not been large, but these exports indicate that New York is to some extent performing the capital export function of a center and that she is doing so with some versatility.

A COMPARATIVE STUDY IN DEBENTURE AND MORTGAGE BOND FINANCING*

MELVILLE PETERSON
University of Missouri

IN THE YEARS following World War II, at least one major change occurred in the nature of the bond instruments used by American industrial corporations. Most of these concerns issued debenture bonds rather than mortgage bonds during this period, in spite of the fact that, in prior years, the custom had been to favor the secured bonds. Both the nature and the extent of this change were measured in three ways for the years from 1937 to 1938 and from 1946 to 1954: (1) by the number of industrial companies that had used both debenture and mortgage bonds, (2) by the number of each type of bond outstanding, and (3) by the total par values of each outstanding bond type. In addition, ratios of income to bond charges were computed for each industrial company with bonds outstanding, and these were presented, as averages for each year studied, to determine whether the investment value of industrial bonds was impaired by the lack of specific security. To obtain a more detailed analysis, the companies with each bond type were grouped together and then further subdivided by classifying each by type of business and by size of total tangible assets. Average interest coverage ratios were computed for each of these classifications for each year studied as a method of comparing how well the companies with each type of bond earned their interest charges.

To show a supplemental measure of protection, stock equity to bonded debt ratios were computed for four selected years from a random sample of the companies with both mortgage and debenture bonds outstanding.

From the data presented, three basic conclusions were reached:

1. American industrial corporations that issued bonds between 1946 and 1954 made greater use of unsecured bonds, as measured by the number of companies with these bonds outstanding, by the number of such issues outstanding, and by the total par values of these bonds, during this period than during the years from 1937 through 1939.

* A dissertation completed at the University of Illinois in 1959.

2. The companies that had issued the debenture bonds were able to earn their fixed interest charges more adequately in both periods studied than were those companies which had issued only mortgage bonds.

3. Through a proportionately greater investment in the company than that provided by the bondholders, the stockholders of those companies with debenture bonds gave a better degree of protection to their bondholders than did the stockholders of the companies with only mortgage bonds. Furthermore, among the industrial companies with bonds outstanding, the manufacturing companies were primarily the ones that issued bonds of any type, while the other industrial companies (that is, extractive, trade, service and amusement, and miscellaneous) made only limited use of bond financing. Thus, in the 1946–54 period, the great increase in the use of debenture bonds occurred chiefly among the manufacturing companies, while among the other groups of industrials the total amount of bond financing decreased, with little or no change in the types of bonds issued.

As evidenced both by the interest coverage ratio and by the stock equity to bonded debt ratio, the conclusion was reached that the industrials with debentures generally had the better credit ratings among these companies issuing bonds and hence were able to issue unsecured bonds. However, a tentative conclusion was reached that, in addition to the better credit ratings, these companies may also have been able to reduce their over-all cost of bond financing by the use of debenture rather than mortgage bonds.

THE INTERNAL FINANCING OF CORPORATIONS IN THE UNITED STATES, 1946–54*

HERBERT E. SIM
University of Notre Dame

THIS STUDY attempts to synthesize the existing elements of a theory of corporate saving, elements that have their origin in various deductive analyses and statistical investigations. In additon, the study inquires into the financing behavior of United States corporations during the recent postwar period of 1946–54. The purpose was to determine the extent to which corporations in general and corporations belonging to the several major industrial subdivisions relied upon internal and external funds to finance their physical-asset requirements during a period marked by nearly continuous prosperity and rapid expansion of physical investment.

The results of the inquiry into the financing behavior of corporations may be summarized as follows: (1) corporations relied mainly upon internal sources of funds to finance their acquisitions of physical assets during the period 1946–54; (2) external sources of funds were employed irregularly and to a minor extent, the degree of reliance upon external funds fluctuating with the level of investment, particularly with that of inventories; (3) public utilities constituted the only industrial division of corporations relying upon external sources of funds regularly and for a major part of financing requirements, absorbing approximately two-thirds of the external funds employed by all non-financial corporations; (4) manufacturing corporations, whose physical investment exceeded that of public utilities by 69 per cent during the period 1946–54, absorbed approximately one-third of the externally supplied funds of non-financial corporations; (5) financial corporations generated internal funds in excess of physical-assets growth to an extent roughly equal to the amount by which manufacturing corporations absorbed external funds; (6) corporations in all other industrial divisions supplied funds on balance to the outside to a minor extent.

The analysis of the financing behavior of United States corporations tends to confirm and shed additional light upon a number of theories concerning the determinants of corporate saving. Thus the

* A dissertation completed at Syracuse University in 1958.

analysis supports the view that previous dividend payments and current income are the two factors most influential in determining the level of retained earnings and of the retained-earnings ratio. Evidence is inconclusive, however, concerning the effect of expansion programs upon decisions to distribute or retain income.

The results of this analysis have a bearing upon several significant questions. One of these concerns the adequacy of outlets for the investment of personal savings. Inasmuch as the analysis points to the conclusion that, during periods of prosperity, United States corporations absorb only a relatively small part of personal savings, it is clear that such savings must find investment outlets elsewhere, for example, in the field of residential housing construction, if high levels of income and employment are to be maintained. Other relevant questions touched upon by the study are those pertaining to the alleged dearth of equity capital, the role of market forces in allocating capital resources, and the efficacy of interest-rate policy in influencing the level of investment.

EFFECT OF CHANGES IN INSTITUTIONAL AND INDIVIDUAL DEMAND FOR CORPORATE SECURITIES ON THE STRUCTURE OF THE CAPITAL MARKET, 1920–55*

MORRIS LEONARD STEVENS
Kansas State College of Pittsburgh

THE PRINCIPAL objective of this study is to analyze the structure of the corporate capital market. The study analyze the reasons why demand for stocks lagged in the early postwar period when dividend yields based on market prices were much above the bond rates. The relatively high cost of equity diverted corporations to debt as a source of new capital. Attention is focused on the relative cost of debt and equity to the levels of new issues of corporate stocks in the early postwar period as compared with '0's. The study emphasizes investor demand as a determining . in the high cost of equity.

It examines the pattern of corporate investments of the two main investor groups—institutions and individuals. An attempt is made to determine the level and classes of corporate security investments by all savings, financial, and miscellaneous institutions as compared with individuals. The study shows changes in institutional holdings of both corporate stocks and bonds as a percentage of estimated outstandings of each. By estimating the growing importance of institutional savings as a part of total personal savings, it is possible to measure the shift in the savings process from direct individual savings to savings through intermediary institutions. The growth of institutions is shown by their annual average savings of about 60 per cent of personal savings in the postwar years compared with 30 per cent in the twenties. The rising importance of institutions reduced the demand for equity securities, since their investments were predominantly in bonds.

Their depressing influence on the equities market, however, was less than might have been expected for the following reasons. First, institutional investments in stocks increased from the 1920's to the postwar period, particularly in the 1950's. Second, even though institutions absorbed a greater share of personal savings and in-

* A dissertation completed at the University of Wisconsin in 1959.

vested relatively less of these funds in stocks than did individuals, large holdings of individual investment funds still flowed into the possession of high-income individuals. Since there has been a long-term declining trend of stocks as a percentage of total personal savings, individuals still had sufficient investment funds to supply large amounts of equity. This was the case despite high tax rates on high-income individuals and available tax-exempt securities. There is sufficient evidence to show that individuals failed to invest as large a percentage of their savings in stocks in the period 1946–49 as they did in the 1920's.

It is concluded that the high cost of market equity capital in the period 1946–49 was only partially due to structural changes in the investor community. A more important factor apparently was investors' preference for bonds. Individual investors had sufficient funds to buy equities somewhat more heavily without causing an abnormal imbalance of their portfolios, but, because of uncertainties concerning prosperity and corporate profits, they avoided stocks. The increase in demand for stocks in the first half of the 1950's was a result of a shift in individual preference plus increased institutional demand.

Because of weak investor demand for stocks, the cost of corporate equity capital was high compared with bonds in the early postwar years. The response of corporations to the relative cost of stocks and bonds stems from the fact that, as cost rose for stock capital, new issues of stock lagged. In the period 1946–49 new stock issues were relatively few, but in relation to the level of the cost of bonds it would appear that fewer stocks would have been issued. Apparently, corporations resist distorting their capital structure beyond a limited degree, even though debt capital is cheaper.

THE CANADIAN DOLLAR, 1948–57*

PAUL WONNACOTT
Columbia University

IN EARLY October, 1950, the Canadian government abandoned the system of pegged exchange rates and allowed market forces to determine the value of the Canadian dollar on the international exchanges with only limited official intervention. The aims of this dissertation were to investigate the events which preceded this policy shift, to consider the factors which have made the Canadian experiment with a flexible exchange rate relatively successful, and to study the activity of the Canadian Exchange Fund Account.

In the early postwar period the official par of the Canadian dollar was changed twice. The 1946 revaluation of the Canadian dollar from its wartime discount of approximately 10 per cent to equality with its American counterpart was not aimed at solving any fundamental disequilibrium in Canada's international accounts but rather was intended to mitigate inflationary pressures in the Canadian economy. This revaluation was followed in 1947 by an alarming drain on Canadian reserves of foreign exchange, which was due, however, to triangular imbalance in Canada's international accounts rather than to an over-all weakness of her international position. Devaluation was therefore passed over in favor of import regulations as a means of checking the drain on reserves, which recovered from less than $500 million (U.S.) near the end of 1947 to over $1,000 million (U.S.) by early 1949. However, because Canada feared exchange pressures as a result of the devaluation of the pound in September, 1949, she quickly followed suit with a devaluation of approximately 10 per cent.

Within a year the conviction that the Canadian dollar was pegged too low became so widespread that there was a veritable flood of speculative capital into Canada, which greatly complicated the problem of inflationary pressures created by the Korean War. Largely because of the repeated failure to choose an appropriate lasting fixed rate, the Canadian government decided to allow the rate to fluctuate.

Long-term capital inflows have been a major disturbing factor in the Canadian accounts since 1950. In spite of the unfavorable balances on current account, the Canadian dollar has moved upward on

* A dissertation completed at Princeton University in 1958.

the international exchanges over the period 1950–57. The anti-inflationary effect of such an upward movement has, on the whole, been welcome during a period when inflationary pressures were pushing up the price level, and one of the major potential dangers of flexible exchanges, namely, a price-wage-exchange spiral, has not been a significant factor in Canada.

On the whole, short-term capital movements between Canada and other countries have been stabilizing in nature since 1950. However, a number of special circumstances inspired the confidence in Canadian exchange stability which was an important factor in the stabilizing movements of capital. Canada followed relatively conservative fiscal policies. Canadian monetary policy was relatively restrained, with the result that inflation in Canada was not appreciably more rapid than inflation in the United States in spite of the Canadian investment boom. Canada had a history of exchange-rate stability, and the belief was firmly ingrained in Canadian thinking that the rate of $1.00 Canadian: $1.00 U.S. was in some sense "normal."

The Exchange Fund Account since 1950 has engaged in limited activity to stabilize the short-term movements of the exchange rate. Because of the importance of maintaining the tradition of exchange-rate stability, further Exchange Fund Activity to moderate the rate fluctuations would be desirable, particularly during extended periods of exchange-rate movement in one direction.[1]

1. A revised and expanded version of the dissertation is being published by the University of Toronto Press in 1960.

BOOK REVIEWS

Business Finance

Organizing and Financing Business. By JOSEPH H. BONNEVILLE, LLOYD E. DEWEY, and HARRY M. KELLY. 6th ed. Englewood Cliffs, N.J.: Prentice-Hall, 1959. Pp. xii+381. $6.75.

The authors of this concise text admit in their Preface that "New practices, changes in emphasis in the teaching of business finance, changes in laws, and the great impact of federal income tax upon financial planning have required substantial changes in, and additions to, *Organizing and Financing Business.*" To this end, the original authors have integrated the thinking and writing of Harry M. Kelly to this revision of their well-known text, attempting to bring in this edition a new scope that will broaden the application of the well-defined financial principles so consistently expounded in the previous five editions.

This reader envisioned that considerable emphasis would be placed on the ever increasing techniques and concepts of financial management as they are finding their place in the growing literature of the business finance field. The problems of funds management, of cash budgeting and forecasting, and the many more sophisticated tools of financial management seem to be a proper field of analysis when one writes text matter aimed at the basic course in finance in the college of business administration. In this regard the book is quite disappointing, although some coverage of the functional financial concepts is admitted to the historical and analytical review of the numerous institutions which are part of the business society.

One of the disturbing features of this book is its strong affection for description of the many narrow details of corporate activity which seldom are important except to very top-level management. The classical review of forms of enterprise, with their relative advantages and disadvantages, and the consistent approach to certain topics as again having a series of advantages and disadvantages are deadening. The tendency of much of the writing to approach the handbook pattern for reference seems to militate against exciting interest in undergraduate students. There is a strong affection for inclusion of almost every form of corporate security, whether very important in daily business society, and a further emphasis upon the problems which really are important primarily to the large-scale corporation. Finally, the emphasis upon these traditional corporate finance subjects is highly legalistic—again an approach which for many years has been considered proper when one analyzed the financial problems of business enterprise.

Some strong points need identification. The book is written in a concise, clear style, which, however, tends toward a pattern in which the reader anticipates coming to grips sooner or later with a listing of virtues and vices of the respective topics of the various chapters in the book. In addition to the usual questions, which are strongly oriented to answers listing advantages and disadvantages, some very sophisticated problems and suggested written assignments are at the ends of chapters to stimulate instructors and students toward policy analysis.

And the briefness of the book makes it adaptable to courses in which the calendar of the quarter system is a factor in the scope of training available for a basic finance course.

In the main, this reviewer is weary of the approach, which is traditional corporate finance. This approach has focused on the organizing and developing of corporations from top-management areas, and it has always tended toward a taxonomic display of the data, which is native to business finance. Rather, he would cherish the analysis of financial management practice and policy as it is finding expression in the writings of more progressive authors who have cast off the yoke that imitators of Dewing have impressed on texts in this field for too many years. This book thus appears to be an inadequate adoption for those progressive curriculums which are emphasizing functional financial management, but it can be quite useful for courses which continue to enjoy the traditional corporate finance profile. This text may also be helpful in the abbreviated programs such as the executive development or management training programs so popular in most major university administrative mentalities.

RICHARD E. BALL

University of Cincinnati

Corporation Finance. By FLOYD F. BURTCHETT and CLIFFORD M. HICKS, with the assistance of K. L. BROMAN. 3d ed. Lincoln, Neb.: Johnsen Publishing Co., 1959. Pp. viii+712. $6.95.

Minor changes in bibliography and in statistical detail have given a contemporary appearance to the third edition of Burtchett and Hicks's *Corporation Finance*. Except for a few details, however, the latest edition is a page-for-page reprint of the 1948 edition and can claim no advantage other than a clean cover, new publisher, and the scent of fresh ink.

The authors, with the assistance of K. L. Broman, attribute the lack of substantive revision to the timeless quality of the fundamental principles of business finance which their book purports to explain (pp. vii, viii). But the text is descriptive rather than analytical in approach. Consequently, changing institutions at times prove embarrassing to a book in which the contents and date of publication are in sharp disagreement. For example, detailed discussions of the Home Owners' Loan Corporation (pp. 367, 696–97) and of the dangers inherent in pegging the government bond market (pp. 692–93) detract noticeably from the contemporary import of *Corporation Finance*. Similarly, the discussion of the RFC appears to be redundant and is not adequately revised by insertion of the words "R.F.C. is now liquidating" at the end of a concluding paragraph (p. 698).

Changes in bibliography were made without corresponding changes in footnotes. Hence the 1959 edition, like its 1934 and 1948 predecessors, urges every student to read a 1912 treatise on "depreciation" by P. D. Leake (n. 1, p. 461).

The passage of time affects the balance of a text and the authenticity of statements contained therein. For example, note the authors' reference to the 24 (*sic*) registered securities exchanges (p. 368). As for balance, a contemporary text which devotes a full chapter to equipment obligations (pp. 219–30) should not ignore subordinated debentures and the Small Business Administration or slight the subject of institutional investment.

By far the most objectionable aspect of the third edition of Burtchett and Hicks's *Corporation Finance* is the "revision" of statistical tables included in the

text. For example, compare Table 57 in the 1948 and 1959 editions. The text under review is replete with similar examples which serve to confuse more than to explain. A particularly bad example in this regard is Table 19 (p. 272), which shows capital structures for industrials and other major corporate categories. In the table, "current liabilities" and "long term debt" are listed separately from an unexplained category, "other liabilities." However, it is the latter category, according to the table, which constitutes 50 per cent of the capital structure of industrials!

While ingenious from the standpoint of economy the revision of statistical detail generally is more misleading than enlightening; the only possible advantage derived from the numerous tables so revised is the chance that the strange pat-

TABLE 57

PRIVATELY PLACED SECURITIES, 1937–46 (in Millions)

Year	Amount	Year	Amount
1937	$335	1942	$ 422
1938	692	1943	372
1939	790	1944	743
1940	774	1945	991
1941	824	1946	1,523

TABLE 57

PRIVATELY PLACED SECURITIES, 1937–57 (in Millions)

Year	Amount	Year	Amount
1937	$335	1942	$ 422
1938	692	1943	372
1939	790	1944	743
1940	774	1945	991
1941	824	1952–57	21,586

tern of data displayed may awaken the student's curiosity sufficiently to cause him to seek elsewhere for a suitable explanation of the apparent inconsistencies in statistical detail. In this and most other respects the latest edition of Burtchett and Hicks's *Corporation Finance* is inferior to the earlier editions and thus, at least in this reviewer's opinion, cannot be recommended for use either as a general reference or as a college text.

PAUL T. KINNEY

University of Illinois

Financial Organization and Management of Business. By CHARLES W. GERSTENBERG. 4th ed. Englewood Cliffs, N.J.: Prentice-Hall, 1959. Pp. xvi+624. $9.00.

The fourth edition of this text, which has been popular for the last thirty years, follows the general pattern of the previous editions with the addition of two new chapters—one on "Financial Statement Analysis" and another on "Public Policy." The chapters on "Working Capital," "Financing Current Operations," "Recapitalization, Readjustment and Failure," and "Corporate Reorganization and Liquidation" have been rewritten. Research questions requiring the use of other reference sources for their solution and short problems coupled with the omission of review questions constitute the major changes from previous editions.

The chapter on "Financial Statement Analysis" discusses financial statements and their preparation, basic analytical ratios, and methods of comparison of items found in financial statements. The material adequately introduces the student to the subject of financial statement analysis. However, this reviewer believes that too much space was devoted to the explanation and definition of detailed items found in the balance-sheet and income statements. Most students will have had two or more semesters of accounting and should be familiar with the meaning of specific accounts found in financial statements or could use other reference sources to review the meaning of accounting terms. More elaboration on the use and limitations of financial statement analysis as a tool of financial administration might possibly have made a greater contribution.

The concluding chapter on public policy summarizes some of the major social and economic issues related to the area of financial management, such as corporate accountability, separation of ownership and control, taxation, monetary and fiscal policy and several other public policy problems. This chapter should cause the reader to reflect on the effect that certain policy decisions made by business management will have on society. The instructor may want to discuss some of these public policy problems as they are suggested in different sections of the text.

While the addition of the chapter on financial statement analysis and the rewriting of the working capital chapter add strength to this aspect of financial management, this text basically follows the same approach as previous editions. Those teachers preferring to use the traditional approach to business finance will find this new edition one of the outstanding texts in this area.

ROBERT C. EARNEST

Florida State University

Corporation Finance. By RICHARDS C. OSBORN. New York: Harper, 1959. Pp. xv +637. $6.50.

The author has successfully carried out his purpose, as announced in the Preface, of producing a broad introductory book on corporation finance. It is not an elementary book; perhaps "basic" would be a better descriptive word. It covers a much wider range of subject matter than that usually found in an introductory text. The author has in mind not only the student who intends to take additional work in the field but also the student who may take one course in corporation finance to obtain a comprehensive picture of the whole field without too much attention to details. In these days when the so-called managerial and internal analysis approach to corporation finance at all levels of instruction is prevalent, the author has not followed the new trend but has avoided tedious discussion of the problems of internal analysis that are part of the work of a corporate financial officer. He leaves such matters to be covered in more advanced and specialized courses.

The teaching experience of the author is evident throughout the text, where he senses subject matter which may be difficult for the student to grasp and therefore supplies excellent illustrations, chiefly through presentation of appropriate actual cases. The treatment is concerned primarily with corporations of medium to large side, especially of the type in which one would expect to find considerable public ownership and markets available for the corporation's securities. Small business and the problems peculiar to it are rather briefly treated in one

chapter. Nevertheless, such subjects as working capital, expansion, income, and failures are treated broadly enough to apply to most business units regardless of size. The financing of transportation corporations is not limited to railroads but extends to bus, truck, and air transportation.

Whether it belongs in a corporation finance text or not, most teachers will welcome a factual discussion of the marketing of corporate securities, including a brief but adequate discussion of the operations of the stock exchanges, the over-the-counter market, and the functions and procedures of investment bankers.

Following the usual outline, we find readjustments and recapitalizations immediately preceding the chapter on failure and reorganization. Such a chapter would be better placed immediately following the excellent chapters on capital structure, where adjustments often brought about by healthy growth are less likely to be considered by the student as connected in some way with failure.

Although the accounting profession has adopted or recommended many changes not only in the handling of reserves but in the nomenclature of the several accounts involved, the author prefers in his brief treatment of this subject to adhere to the better-known practices followed until recently.

Statistical tables illustrative of the subject under discussion, many compiled by the author and some from government commissions, are used where appropriate and should be helpful not only to the student but to the instructor who wishes to add more detail.

Probably the chief adverse criticism the text may receive will be from those who are looking for the mass of technical details which the author has intentionally left out.

The text, by way of pleasing contrast to so many in the field, is relatively easy to read, accurately presented, and up to date. Historical summaries are found where needed for an understanding of present practices. The text has much to commend it.

LLOYD E. DEWEY

New York University

Jim Fisk: The Career of an Improbable Rascal. By W. A. SWANBERG. New York: Scribner's, 1959. Pp. viii+310. $4.50.

Here is a biographical story, involving the eternal triangle, which gives us an interesting character study set in the scenes of some famous Wall Street manipulations. The volume cannot contribute to the technical knowledge of the financial student but can serve as a human-interest story of an important speculative period of our country's financial history centered in Wall Street, and it is written in fascinating style.

Jim Fisk, who was one of the famous group of speculators who maneuvered their fantastic schemes at the mid-point of the last century, is revealed as a warm personality, vain at times, but always sympathetic for the person he believed to be a friend, and endowed with an intensity of drive which would be the envy of many, even in this jet age. The important contribution of this book is to tell something of the peddler background of Jim Fisk, his family loyalty, and his insatiable drive for schemes in which his sense of gaudy show and embellishment could be used to win approval from the populace.

To see Jim Fisk as the impresario of the revived theaters of New York in the period 1865–72, as the "colonel" of the New York National Guard 9th Regiment,

and as the "Prince Erie" of Wall Street is indeed an introduction to a man of many facets. And these facets were in far greater variety than those of his contemporaries of the financial markets, though certainly there was no lack of unusual quality in Drew—"the deacon"—Vanderbilt—"the commodore"—and J. Gould—"the railroader."

It is interesting to note that the author can report little of authenticity to establish wild dissipation on Fisk's part, but it was true that the stories were widespread and believed by many. This reputation was effective in barring Fisk from general acceptability in the New York "high" society of his time. But it is ironical to note that an accepted member of this society should deem murder the proper approach for solving his problem with J. Fisk and so end the fabulous career of this speculative giant.

One does wonder, however, as he reads the story of the manipulations in the market, how it can even be called "manipulation" when so much of it was based on outright fraud and illegality. Certainly, without the added touch of high fraud, the efforts of "pools" and "wash sales" and other such speculative devices would have been relatively impotent to gain the ends which these "financiers" of this age achieved.

All in all, the book is well written, succeeds in revealing some of the human qualities of the man to the reader, and relates a very interesting series of episodes in the rather fantastic financial life of the late nineteenth century. As a book reporting the background and character of the men in the "market" of that period, it is interesting for finance students and possibly important for their complete education.

CLIFFORD M. HICKS

University of Nebraska

Insurance

Insurance: Principles and Practices. By FRANK JOSEPH ANGELL. New York: Ronald, 1959. Pp. viii+894. $7.50.

In writing this book, the author hoped that "the reader will find . . . the answers to all his important questions about insurance." In his own words, Professor Angell "sought to strike a balance between a discussion of insurance principles and policy analysis." This is a large order, and, in trying to fill it, the result is a long book which must have been a heroic task to write and, this reviewer can testify, is a heroic task to read.

By managing to avoid ambiguities and by making each sentence clear, Angell has made the book more interesting to read than its bulk might suggest. However, the book is unnecessarily long. This criticism has two dimensions, one of which relates to the fundamental concept of the book and the other to its execution.

If one accepts the concept that the book is designed to combine "an analysis of the principles and practices of insurance into a workable guide for the college or university student of insurance, the businessman and the insurance-buying public," then one must comment that the book is made needlessly long by incredible repetitiveness. To take simply one example, the term discounts available to the buyer of a 3- or 5-year fire insurance contract are completely explained at least four itmes. To take another example, the Homeowners A, B and C policies are discussed under both fire and multiple-line coverages. These examples could

be extended many fold with other cases. Surely, careful editing could have trimmed a sizable number of pages from this book.

Returning to the question of term discounts, there is another sense in which the discussion of this topic can be criticized, and this criticism is but an example of a more fundamental criticism of the concept of the book, a concept which required such bulk. Here is a book, published in 1959, which discusses term discounts at rates which are obsolete. Is there ground for criticizing the author for not being up-to-the-minute? Perhaps, but clearly in as fluid a field as insurance, policies and practices change rapidly, and considerable question should be raised whether one should ever try to discuss the technicalities of fire, casualty, surety, and life coverages in a college text. Certainly, examples are needed. Students should learn to read a policy, but should they be forced to learn the details of a seemingly endless variety of coverages? This reviewer thinks not. Details change too rapidly, and few students will ever need to know such details. That small percentage who become insurance practitioners will need to know about such matters, but the question is whether college is the place to teach them and, if it is, should we act as though all our insurance students will eventually be affiliated with the insurance business?

Despite the criticisms mentioned, this reviewer can strongly recommend this book to those who desire to teach courses which, frankly, this reviewer thinks should not be taught. To other possible readers, for example, "the businessman, and the insurance-buying public," the book may be of interest as a reference until time makes it obsolete and as a source of understanding of the principles of insurance in those chapters in which the principles are not submerged by the weight of particular practice. No one will find in this book an adequate discussion of the economic and social impacts and implications of the institution of insurance. All readers should be warned that the book reflects Angell's strong feelings against state insurance and should be aware that in many respects the book reflects the atitudes, aspirations, and beliefs of the commercial insurance industry.

MONROE NEWMAN

Pennsylvania State University

Health Insurance. By O. D. DICKERSON. Homewood, Ill.: Irwin, 1959. Pp. xvi+ 500. $6.00.

This book is the first comprehensive text on the subject of health insurance since E. J. Faulkner's book of 1940. During the interval health insurance in the United States has expanded greatly. Hospital expense insurance, for example, as offered by a variety of non-governmental organizations, covered only 12,312 people in 1940. By the end of 1958, approximately 123,038,000 persons were covered by such insurance. The tremendous growth of health insurance in a changing economic and social environment, combined with the vigorous approach of the author, makes this quite a valuable text for all who are interested in the economics of health care.

Dickerson uses "health insurance" to encompass all plans utilizing a system of combination of risk for the handling of the expense and income losses attributable to poor health resulting from accidental injury or disease. Included are plans of private insurance companies, the Blue Cross and Blue Shield "service" plans, a heterogeneous group of "independent" plans, and governmental plans.

The author divides the book into four parts. The first of these fits health insurance into the economic and social framework of society by identifying health losses and by analyzing, on both a theoretical and a practical level, the methods available for handling them. In the Introduction Dickerson says that he attempts a "more rigorous conceptualization than current practice reflects." Unfortunately, his development of a theory of risk which is somehow woven into the chapters of Part I presupposes a much more soundly structured theory than currently exists. And it is not, conceptually, a very neat construction. "Transfer of risk" and "insurance," for example, are placed on equal footing as major methods of meeting financial losses. The transfer method is criticized as it compares with insurance. But insurance, it develops, is a method often involving transfer. Emphasis on a twofold classification of methods leaves the transfer concept much more obscure than in other writings on the subject. No great amount of rigorism is required to eliminate such incongruities.

But difficulties of that variety are largely overshadowed by the generally thoroughgoing character of the book. Part I sets forth the nature of health losses with quite sharp statistical focus. Parts II and III describe the development of the various insurance coverages available and examine the component parts of each. Hospital, surgical, and other coverages designed to take care of expenses incurred because of poor health are treated in Part II, and income replacement coverages in Part III. Group insurance and social insurance presented a problem in Dickerson's organizational scheme which was not too satisfactorily solved by adding chapters on each subject to Part III. Part IV deals with the operational aspects of health insurance, principally from the viewpoint of private insurance companies. The latter part is broad enough in scope to include subjects in a range from underwriting to governmental regulation.

Dickerson's offering is a discerning view of a very dynamic and complex subject.

HARRY J. SOLBERG

University of California, Berkeley

Price Discrimination in Property and Liability Insurance. By C. ARTHUR WILLIAMS, JR. Minneapolis: University of Minnesota Press, 1959. Pp. vi+100. $2.50 (paper).

There is much to indorse and little to criticize in this scholarly monograph. Insurance company executives, state officials, and students of rate-making can look to this volume for a comprehensive analysis of price discrimination in the property-liability lines of insurance. Formerly the literature, although reasonably abundant, was scattered and uncompiled. Professor Williams has selected the significant from past writings, added new material, and systematically analyzed insurance prices vis-à-vis price discrimination in other industries. His study is limited to premium discrimination as it relates to individual insureds or classes of insureds but not to the general level of premiums. Only the pricing practices of advance-premium commercial insurers—stock and mutual—are investigated; assessment and other types of restricted insurers are excluded. This latter group would in any case account for only a relatively minor amount of premium volume.

This compact volume is subdivided into three topical areas. The first subdivision examines basic rating methods—individual, class, and modification (merit)—

to determine to what degree these rating techniques produce equitable premiums. Equity in constructing insurance rates implies, as Williams observes, many subjective judgments, particularly in view of the public interest nature of insurance. However, this section reveals that a basic proposition of insurance rate-making—one that has general ethical acceptance—is that premiums should be proportional to costs. Average full cost is accepted as the cost concept that has validity in insurance pricing. However, application of this concept, as this study indicates, is necessarily controversial because (1) fixed costs must be assigned on some arbitrary basis and (2) the basic cost—the risk element—is in itself an estimate of expected losses. Nevertheless, despite issues in application, the conclusion is stated that "insurance premiums are cost-based . . . the record of the insurance industry in this connection being superior to that of other industries." This is an acceptable general conclusion, although the reviewer suggests that perhaps Williams—and many others—give too little emphasis to dividends as a facet of insurance pricing.

The second section traces the development of state rate-regulatory statutes, thus placing present laws in their proper historical setting. Few observers outside the field of insurance—and, indeed, some within the field—comprehend the unique interrelation of co-operative and competitive pricing that identifies insurance rates. Williams does much to dispel the confusion. The function of the rating bureau is clearly explained, but the privilege of independent filings—and their impact upon price flexibility in insurance—is not minimized. The influence of the SEUA decision and Public Law 15 upon existing price control laws is also fully and logically developed.

The third subdivision continues to probe into the area of state regulation but examines the administration of regulatory laws rather than the statutes themselves. This is a most useful procedure; interpretation and enforcement of statutes by state department officials can either neutralize or fortify existing laws. A survey of state insurance departments (nineteen reported, although all were polled) revealed, among other results, the tendency of these departments to regulate to the maximum degree permitted by law or by limited staff personnel. However, some disposition toward liberal acceptance of deviated filings was also noted. Williams observes that more ample budgets would permit state insurance departments to pursue the goal of price equity with greater effectiveness. In view of the premium-tax tribute that the insurance industry makes to general state revenues, this comment warrants consideration; insurance department budgets consume less than 5 per cent of premium-tax collections. The judicial significance of departmental rulings is pointed up by the finding that courts customarily indorse such administrative decisions.

The final section summarizes the author's findings and comments. A selected bibliography of readings (1) in the general field of rate-making and (2) in rate-making for specific lines of insurance completes this significant addition to the literature of insurance.

RAYMOND F. VALENTI

Syracuse University

International Finance

Foreign Trade and Finance. Edited by WILLIAM R. ALLEN and CLARK LEE ALLEN. New York: Macmillan, 1959. Pp. xii+500. $6.00.

This book of readings contains twenty-three selections "directed toward the core of analysis in international economics." Three criteria were used in the selection of the essays: "quality of substantive content," "manageability by students and non-specialists," and "scope" (places the topic in a broad context). The selections are reprinted "almost in their entireties."

The main thrust of this book—over two-thirds of it, Parts II–IV—is toward essays dealing with the nature and consequences of, and adjustments to, balance-of-payments disequilibrium. Price, income, and exchange-rate adjustments are explored, and Frisch's 1947 *American Economic Review* article on discriminatory direct controls is included (in Part V). The policy implications of the comparative-cost doctrine and some economic consequences of the tariff are discussed in four essays in Part I, and international investment is examined in three essays in Part V.

A novel aspect of this book is the extensive introductions and commentaries (one-quarter of the book) provided by the editors at the beginning and conclusion of each of the five groupings of essays. In general, the introductions provide the theoretical background which the articles sometimes take for granted, whereas the commentaries clarify and elaborate difficult points in the articles and present views of other writers whose essays are not included.

Most instructors will use this book as a convenient source of supplementary readings. There is no similar collection, aside from the A.E.A. *Readings in the Theory of International Trade* (1949). With one exception, there is no duplication of essays between these two books, although six authors (Graham, Haberler, Machlup, Metzler, Nurkse and Viner) have essays in each volume. With the exception of four essays by Nurkse, two by Metzler, and two by W. R. Allen, no author appears more than once in this book.

The inclusion of the extensive introductions and commentaries raises the question as to whether this book might serve as a basic text for an international economics course. Most instructors probably will not try it. In Part I the student would require more material on the assumptions and details of the comparative-cost doctrine. In Part II, which uses essays on the dollar shortage to develop a variety of meanings and measurements of balance-of-payments disequilibrium, the student may well end up confused, unless the commentary focuses more sharply on where all this discussion leads. Finally, the treatment in Ellsworth and in Kindleberger on export-import elasticities and exchange depreciation will be clearer to most undergraduates than the essay and comments on this subject in Part IV.

But, over-all, the editors have succeeded in doing more than reprinting a number of good articles in international economics. Their commentaries will prove useful to most students. Furthermore, since journal articles usually require reprinting for undergraduate assignment and little of this has been done in international economics, the book should enjoy some popularity.

BURTON C. HALLOWELL

Wesleyan University

Balance of Payments and Economic Growth. By J. M. LETICHE. New York: Harper, 1959. Pp. xiii+378. $6.00.

Professor Letiche succeeded in his goals (1) of presenting a synthesis of the principal theoretical approaches to the study of balance-of-payments adjustment

and (2) of formulating more general theory comprising all economic (external as well as internal) forces which influence the balancing process. He has supplemented, rather than supplanted, the existing analyses.

In Part I, Letiche discusses critically the classical and Keynesian theories of the adjustment mechanism, as well as the work of the Harvard neoclassicists (Taussig, Ohlin). He proves that the most important classical writers were aware of the role that induced movements of income and expenditure play in international adjustment and did not (completely) disregard lapses from full employment, although they did fail to devote the necessary attention to dynamic factors and to forces which account for the economic system's imperfections.

The Keynesians are treated also in terms of their merits and demerits. Among the former is their significant contribution to model-building; among the latter is their underestimation of the beneficial effects exerted on the adjustment mechanism by deflation and their minimization of the responsibility which countries with passive international balances should assume for the correction of such.

It is in Part II that the author develops the "generalized" theoretical framework based on the doctrines expounded previously. He achieves his purpose through (1) an analysis of the principal aspects of the balance-of-payments adjustment between industrial and primary-producing countries, (2) an analysis of the effects of national productivity differentials on the balancing process, and particularly (3) a detailed, sophisticated examination of the historical relationships between the internal economic growths of two "pivotal" economies—the United Kingdom and the United States of America—and their international accounts.

The important difference between these two cases is explained by the fact that Britain's economic development did not cause international trade and payments disequilibria, whereas that of the United States has done so. The author contends, moreover, that the adjustment mechanism of neither of these two nations has conformed consistently to the accepted theory. (One striking example of this is the active balance in the American current account, persisting since 1896, which has not produced those changes in prices, incomes, and capital movements capable of reversing the long-term trend.)

The growth of the British economy was not responsible for international dislocation due to extensive foreign lending which rather both stabilized the country's exports and imports and dampened cyclical fluctuations. Excess savings, resulting from disparities between full-capacity output and actual output of the economy, found outlets overseas.

The American economy has been unable to restrain the disequilibrating forces which originate in the relation between the volume and growth of productive capacity, on the one hand, and rising national income and aggregate demand, on the other. The historical tendency of United States production to rise faster than domestic expenditures has caused export surpluses and dollar shortages. Whenever actual output has risen above total demand—which has characteristically led to declining marginal efficiency of capital in America as well as abroad—pressures have been exerted to expand exports and contract imports. Letiche maintains that the excess of United States production over expenditure has been caused by institutional factors (including inflation and business cycles) rather than by structural ones.

Two aspects of the book invite criticism: the lack of supporting evidence for some of the author's "suggested" conclusions and the fact that the specific analy-

sis was confined to only two countries. Many a lesson could be drawn and theoretical insight enriched from the experiences of other countries whose economic growth has not been any less dynamic.

KAREL HOLBIK

Boston University

Investments

Making Money in Today's Market. By RALPH C. EPSTEIN. Garden City, N.Y.: Doubleday, 1959. Pp. vii+215. $1.75 (paper).

This is a paper-cover revision of *How To Invest Your Money* published in 1955. The author discusses such typical investment media as stocks, bonds, life insurance, and mutual funds. He explains the importance of a will, particularly as it relates to the creation of a testamentary trust. In addition, the function of the investment counsel, the appraisal of securities, and the setting-up of a balanced investment program are explained. Four chapters are concerned with diversification by stocks and bonds, by industries, by issuers, and by time. One of the outstanding chapters in the book is on "Growth Stocks"—an area receiving continuously increasing attention from investors and investment analysts.

With the stock market in 1959 at new high levels; with the price-earnings ratio of Dow-Jones industrial average stocks at over 20/1; with Dow-Jones industrial stocks having an annual yield advantage as compared with Barron's ten highest-grade bonds of −1.52 per cent; with the Dow-Jones industrial stocks selling at more than twice their book value, the need for books like *Making Money in Today's Market* is greater than at any time since 1929. Fortunately, there is a growing number of such books offering investment guidance to the intelligent layman.

One weakness of this edition is the limitation of the revision. Reference to Hudson Motor Car on pages 48–49 appears to be to an independent automobile company, when Hudson Motor Car has long since disappeared into Nash-Kelvinator Corporation. Much of the data apparently have not been up-dated since 1954–55, and revisions have in many instances been handled by footnotes. While basic investment principles remain sound regardless of the examples used, the reader's interest would undoubtedly be stimulated more by fresh up-to-date examples and material.

The book, however, is a valuable addition to the investment literature available to the layman. Its importance today cannot be overestimated, as increasing speculative interest enters the stock market. Sound study, approach, and selection of investment holdings by today's investor can do much to avoid serious losses in the future. *Making Money in Today's Market* can do much to help the investor build a profitable investment program.

JACOB O. KAMM

Cleveland, Ohio

Investment Management. By HARRY C. SAUVAIN. 2d ed. Englewood Cliffs, N.J.: Prentice-Hall, 1959. Pp. xx+548. $9.25.

Dr. Sauvain has included in this excellent second edition about all the recent important investment portfolio and security analysis advances. While retaining and expanding the important area of investment policy, he has expanded security

analysis. He develops a coherent theory of the problem of grading and valuing securities. This is what he states to be his aim. He is still stronger on portfolio policy and the theory of security analysis than on either security or industry analysis. However, this reviewer considers Sauvain's approach to security analysis to be much better than most presentations. The book is broad and deep, yet highly readable, well presented, and unbelievably inclusive.

This is an excellent text for the first course in investments at the university level. It is also valuable for the professional portfolio manager, security analyst, or investment counselor. It is readable enough for the lay reader interested in securities to profit considerably through its use.

At the university level this book would serve admirably, with emphasis on either portfolio management or security analysis. However, too severe a security analysis course orientation would require the text to be supplemented with more ratio work and broader industry and corporate case material.

The professional investment man will be highly pleased to find the very latest thinking on various portfolio policy and security analysis concepts clearly presented and in correct perspective.

Experience both as professor and as manager of institutional-size investment portfolios has made this reviewer acutely aware of the need for the continual development of the scientific approach to investment portfolio management and security analysis. This book is so oriented. For instance, the newer theories of common-stock investment, including the present-worth concept; common-stock quality determination problem; growth stocks; the interest rate; inflation; the financial risk; the purchasing-power risk; and other risk aspects of securities are well presented. The author's approach to the problem of product demand is worthy of note.

Investment theory, such as the structure of security yields, is presented through a very lucid text presentation, charts, and graphs. Some case method is introduced into the questions accompanying each chapter. Ancillary aspects of the securities market, sources of information, the work of the Securities and Exchange Commission, and the operation of the various institutional structures, such as investment banking and brokerage, are well covered.

The author's boldness in being willing to present probable maximum price deteriorations for a diversified group of issues of each of the several principal grades of securities under conditions such as depression and inflation is most stimulating. This will be welcomed, whether agreed with or not, by all practicing portfolio managers who are faced with the stark reality of the sometimes illogical impact of various developments on security market prices.

Whereas the author centers his analysis approach in security analysis, he recognizes the practical impact of the host of forces in the market place that make up the concept of market analysis. He introduces these at various points. Thus he recognizes the problem of the spread between investment value and market price, and he treats of causal factors.

It is difficult to find fault with this book and still be fair to the author. The treatment of the subject matter is excellent, and omissions are few and, for the most part, quantity rather than basic item omissions. Ratio analysis is somewhat short, both from the standpoint of coverage and from the standpoint of ratio interpretation and meaning. However, ratios are covered in an acceptable manner.

The book lacks extensive treatment of industry analysis. Yet this is probably a recognition of the need to subordinate the customary industry classifications to the individual characteristics of each security relative to required functions in the investment portfolio.

This book is an excellent composite and as logical a coverage of the many issues involved as can be expected in a single volume.

HAROLD A. DULAN

University of Arkansas

Investment in Producing Oil Royalties. By CARL S. WEBBER and WALTER S. SACHS, JR. Philadelphia: Walter S. Sachs & Co., Inc., 1958. Pp. ii+54. $5.95.

This book has positive values for both sophisticated and unsophisticated investors; but the latter, to whom it is apparently addressed, are expected to take on faith certain facts which the former would probably not readily accept without supporting evidence.

The book has the merit of being compact, well organized, and well written. Investors can thus get quickly and easily at least an elementary knowledge of such matters as the nature of a producing oil royalty; reasons for only a nominal value on the deed; distinctions between the rights and functions of the "working interest" and the "royalty holder"; the probable time pattern of the receipts ("a series of declining monthly payments"); reasons why there are usually interruptions in the flow of receipts (technical); the necessity on the part of the royalty holder to estimate what part of his receipts represent return of principal and how he may benefit by favorable tax laws ("after cost depletion has recaptured the return of principal," the royalty holder continues to deduct depletion on a percentage of gross-receipts basis); the character of a productive oil reservoir; the role of gas and water as primary and secondary sources of energy for extracting the oil; the reasons why proration and co-operation among the working interests may be necessary for economical extraction of the oil; and how various estimates are made bearing upon an evaluation of the future income accruing to the royalty holder. These last include estimates of the amount of oil "in place," the portion of it that is economically "recoverable," and at least the theory of discounting the future proceeds in order to arrive at the present value of the royalty.

In illustrating how to calculate the present value of a royalty, the authors selected a capitalization rate of 12 per cent. Although they have conceded that in an active market high rates reflect high risk, they have apparently used this rate not because they believe it reflects high risk but because it is thought to be typical of the actual rates of return ("It is sensible to borrow at 6% if this frees capital to earn 12%"). If the income is as certain as the authors contend ("The rate of return on investment is relatively high for the small degree of risk inherent in the field"; "General accuracy of recovered oil estimates is ±15%"), a much lower rate of discount would seem to be appropriate. The many illustrations given for deriving the yield rate from the price of the royalty and the estimate of timing and the amount of future receipts are all 12 per cent and upward. According to the words and figures in the book, it would appear that the chief disadvantages of oil royalties for the small investor are the high unit price ("$2,000 to $20,000") and absence of ready marketability. Although the high rates and certainty of income and the rapid recovery of principal are stressed as the advantages over alternative forms of investment, no research is either offered or cited to support the important contentions of both the high actual rates of return and the low range of error in estimating them.

The authors caution the investor to satisfy himself that the costs to the working interest of extracting oil remaining in the reservoir will not exceed the prob-

able price of the oil, otherwise "the working interests will stop production and look for more profitable wells . . . the amortization of the cost of exploration and discovery and the drilling of the well must obviously be covered. There are the additional expenses of maintenance and of pumping" (p. 18). But they here neglect the difference in the impact of fixed as against variable costs or of sunk as against future costs on such a decision. There are many other statements that seem questionable to this reviewer, such as that the compound interest calculation of rate of discount or present value is "practically never made in the case of debentures . . . or even mortgages" (p. 24); that risk, in the sense used, is a "function of time" (p. 29); and that "future discounting does not, by itself, give any weight to the advantages of amortizing or 'liquidating' investments" (p. 26). The statement on page 5 that production costs "remain constant" instead of that they do not remain constant is probably a typographical error.

HAROLD G. FRAINE

University of Wisconsin

Money and Banking

Business Loans of American Commercial Banks. Edited by BENJAMIN HAGGOTT BECKHART. New York: Ronald, 1959. Pp. vi+453. $7.50.

To form this excellent volume, fifteen authors contributed essays devoted to a description and analysis of the history, quantity, and quality of business loans by commercial banks. The great majority of the authors are bank executives; the minority is composed of three professors and two Federal Reserve System economists. Somewhat arbitrarily, the book is divided into three parts, each containing about five chapters, labeled "Background," "Types of Business Loans," and "Dynamics of Business Loans." The style is lively enough throughout to warrant applying the invigorating word "dynamic" to all the essays.

Space does not permit comment on each essay. Banking executives will doubtless find such chapters as W. J. Delaney's "The Problem of the Slow Loan," E. F. Gee's "The Seasonal Loan," and G. S. Moore's "Term Loans and Interim Financing" not only interesting but also profitable. The monetary economist is more likely to be intrigued by Clay Anderson's chapter, "Competitive Factors in Business Loans," and Professor Beckhart's concluding essay relating business loans to broader questions of economic growth and stability.

Collections of essays are somewhat like days of the week: some are better than others. Taken as a whole, few in the banking profession or on the periphery will fail to find something in this volume to excite their intellect. On occasion it will result from a desire to debate or to question. For example, the assertion (p. 56) that "government lending agencies are largely an outgrowth of the Great Depression" led this reviewer to ponder the wisdom of that hoary adage, "It ain't ignorance that hurts us; it's knowing so danged much that ain't so." Difficult to understand, too, is Anderson's "essence of competition" (p. 299), with no consideration of entry into and exit from the industry.

There can be very few criticisms of the successfully performed purposes of the volume. As collateral reading for courses in money and banking it is superb. There is also a remarkably good Bibliography and a very useful Index.

ARTHUR KEMP

Claremont Men's College

The Bank That Banks Built: The Story of Savings Banks Trust Company, 1933–1958. By ADOLF A. BERLE, JR. New York: Harper, 1959. Pp. xvi+109. $2.75.

Professor Berle is known as an advocate who writes interestingly. The present work is genuine Berle and genuine advocacy.

Savings Banks Trust Company (hereafter "SBTC") was born of the hectic March of 1933 to serve as a "bankers' bank" for the savings banks which are particularly significant in New York but which were without the advantages of Federal Reserve membership. Capital-stock subscriptions of $5 million were made by the savings banks, with an additional $50 million debentures payable by them in cash or *mortgages*. RFC agreed to buy $50 million in senior debentures of SBTC and $100 million of its sister institution, Institutional Securities Corporation, the depository for slow-moving assets. The whole proposal was to meet the threat of mass withdrawals in the banking crisis of 1933. The threat never materialized. A vehicle had been established through which government could pump liquidity. Berle chooses to de-emphasize the role of the government.

Born to fend a threat that never materialized, SBTC showed remarkable agility in adapting itself to the test of survival, namely, serving other useful purposes. It early initiated an investment advising service that was economical for many of the smaller savings banks. It serviced $4.3 billion in portfolios for an annual charge of $40,000. Perhaps that proves too much. It assisted in management of foreclosed properties. But here Berle reveals too much when he speaks of completing 121 property rehabilitations. There were savings and loan associations in the Midwest (and outside Chicago) which each handled 3,000 and more.

Naturally, acute counseling led to a thorough organizing of data on the mortgage market, particularly for New York's metropolitan area. In fact, as Berle points out, just about every mortgage in New York over $10,000 was known in SBTC files. This, however, backfired into an antitrust suit. SBTC entered into a consent decree. Federal authorities thought it was organizing the market and not just the data.

Another of SBTC's ventures was the Mutual Savings Banks Fund—a competitor to FDIC. This terminated in 1943 with liquidation of the fund and the enrolment of New York's savngs banks in FDIC.

Further virility appears with the procurement by SBTC in 1938 of permission from the New York legislature to propose to the state banking board exemptions from the legal list. Such exemptions were for savings banks only and could be proposed by "a trust company all of the capital stock of which is owned by not less than twenty savings banks." The suit fit SBTC! By its efforts, SBTC got $5.3 billion put on its special legal list.

But, as the bond market was invaded by private placement, this legislative preference was not enough. As Berle says, "The method is simple": an SEC ruling that a placement through SBTC for distribution to New York savings banks only is a "private placement."

In the next to the last chapter, Berle makes clear (as George O. May was to discover when as a savings bank director he examined the assets of his bank) that SBTC was run to make money. It is the highest earning asset its members have!

In the last chapter (entitled "Jules Verne, H. G. Wells, and Buck Rogers") Berle takes off (p. 101): "Savings at present represent a balance of current productivity over consumption, available to take care of the capital needs of the country. But if productivity becomes virtually unlimited, or can be set (within reason) at any desired level, limitation of consumption no longer becomes

necessary—the United States *and New York* could be in such a situation in the foreseeable future—the theory of banking is likely to undergo tremendous evolution." (Italics supplied.) Sometimes it is a heavy burden for the rest of this country to put the stuff into New Yorkers' dreams.

Seriously, however, Berle records firsthand experiences of an era that desperately needs recording before it is too late.[1]

ERWIN ESSER NEMMERS

Northwestern University

1. See my review of Earnest's recording of savings and loan experience in the 1930's (this *Journal*, XII, No. 3 [September, 1957], pp. 408 f.).

Economic Fluctuations: Growth and Stablity. By MAURICE W. LEE. Rev. ed. Homewood, Ill.: Irwin, 1959. Pp. xviii+659. $7.00.

This is the second edition of Dean Lee's widely used book in the field of business cycles. This revised edition lives up to the high standard set in the first edition of the work. Lee has added the words "Growth and Stabilty" to the title, to give, the reviewer presumes, a better description of his point of view concerning the need to accommodate in optimum fashion our objectives of growth, minimal fluctuations, and price-level stability.

In general, this work closely resembles the first in structure and in point of view. Some changes have been made, however, and most chapters include discussion of current relevant developments and research. Some examples will illustrate these changes. In Chapter 3 entitled "Are There Cycles of Varying Length?" the author has included a summary of recent work in the field of subcycles; in Chapter 4, covering seasonal fluctuations, the application of electronic computers to seasonal adjustment of the data is discussed; a second chapter on social accounting is added, covering flow-of-funds accounts and their application to business-cycle analysis. These are but examples of the adaptations made.

The author has also strengthened Part V covering "Economic Stabilization" and the brief Part VI on "Forecasting Economic Fluctuations." In Part V chapters are added on "Debt Management" (chap. 22) and on "Economic Stability, Prices, and Economic Growth." To the section on "Economic Forecasting" is added Chapter 30 covering the use of National Bureau indicators and surveys of investment anticipations and consumer intentions. The section on business-cycle history has been reduced in length by condensing cyclical experience before 1920 into one chapter instead of three. No changes have been made in the section on cyclical fluctuations theories other than the afore-mentioned flow-of-funds addition and the inclusion of recent theoretical developments such as Friedman's permanent income hypothesis.

The reviewer's one reservation is that the author does not provide a comprehensive analysis of cyclical experience since the end of World War II. Such a discussion following upon his chapters dealing with the 1920's and the 1930's would tend to stimulate the student's interest and hold his attention. Lee, of course, does place much of his discussion of this period in the context of those chapters dealing with economic stabilization measures.

The author's style is once again clear and forthright. The book is quite suitable

for use by either business administration or economics majors. Dean Lee is to be commended for another excellent piece of work.

EDWARD J. CHAMBERS

Montana State University

Business Conditions Analysis. By JOHN P. LEWIS. New York: McGraw-Hill, 1959. Pp. xii+602. $8.25.

Considering the staggering number of new texts published each year, why are so few successful—in both academic and financial terms? Perhaps the significant reason for so many college teachers hopping from text to text is that they are looking for a "holy grail": a text which is understandable to the yawning student in the back row and sufficently difficult to stimulate the yawning professor. Professor John P. Lewis, in this author's opinion, has delivered the near-impossible; he has written a cogent, comprehensible, and even witty text.

Business Conditions Analysis is an attempt to wed the classic business-cycles course taught in the department of economics to the pragmatic forecasting course typically taught in business schools. The first half of the book is an excellent reconstruction of the Keynesian and neo-Keynesian approach to the business fluctuation with a very strong section on the role of money. There might be some objection from the purist that Lewis does not review all the alternative theories of business cycles. But if the point of teaching is to give the student an ability to understand the factors which the great body of the profession hold to be the basic causative variables in the economy, then the theoretical section is a success. It has always appeared to this reviewer that the great weakness of most texts is the unwillingness to leave anything out for fear of offending someone.

Once the student has gone over the relevant materials, Lewis takes him by the hand and shows him how forecasting is done. The second part of this book is a truly remarkable effort, with the author's wit much in evidence. His description of the forecasting problem leads the student to the inescapable conclusion that this process is more of an art than a science. Whether Lewis' survey is sufficiently detailed to train forecasters is doubtful, but at least the student will learn enough to appreciate good forecasting and to distinguish the gold from the dross.

This reviewer believes that this is a fine addition to the field and is worthy of serious consideration for adoption in both cycles and forecasting courses.

R. R. DINCE

University of Georgia

A General Theory of the Price Level, Output, Income Distribution, and Economic Growth. By SIDNEY WEINTRAUB. Philadelphia: Chilton Co., 1959. Pp. xi+123. $3.50.

In this brief volume Sidney Weintraub sets forth a suggestive non-monetary theory of price-level determination and relates it to theories of output, income distribution, and economic growth. The author's basic framework is a relatively simple theoretical model, but his central argument depends almost entirely upon

an empirically derived statistical relationship which he regards as a "magic constant." This constant is the ratio of business sales proceeds to employee compensation as measured by the Department of Commerce series on "Business Gross Product and Compensation of Employees."

Weintraub's conceptual scheme, stated in chapter 2, is based upon the following "definitional equations." Business sales proceeds equal some multiple of the wage bill; or $Z = KWN$, where Z is sales proceeds, W the money wage, N the volume of employment, and K a multiplier dubbed the "mark up factor." Since Z is identical with the price level, P, times real output, Q, it follows that $PQ = KWN$ and that $P = KW(N/Q)$. But Q/N is average product per worker, denoted A, and therefore $P = KW/A$, or $P = K(W/A)$. The crucial question then becomes, How constant is K? If K is *wholly* constant, P is uniquely determined and predictable by the ratio of the average wage to average product per worker; if it is *highly* constant, this price-level truism would seem to be an extremely useful tool for the analysis and prediction of price-level changes.

On the basis of annual data from 1929 through 1957 the author finds (chap. 3) that K has been "highly" constant. During this period the ratio of Business Gross Product to Compensation of Employees remained very close to 2. In percentage terms, K fluctuated upward and downward a maximum of 9 and 6 per cent, compared with much wider fluctuations in the average wage and product per worker. ". . . in 28 per cent of the cases there was no annual change in K. With the plus or minus 1-point cases, a total of 15 readings are included and in 53 per cent of the past 28 cases a guess of practical constancy would have been justified. . . . If a 2 per cent index change is regarded as on the small side . . . in 75 per cent of the instances a prediction of constancy would have been borne out. . . ." (p. 38). Weintraub makes no attempt to explain this statistical "curiosum" (p. 36), preferring to pursue its implications. If K is highly constant, it follows that the price level will move upward only if the ratio W/A increases, and downward only if this ratio falls. The author finds, after computing the appropriate series, that year-to-year price-level changes from 1929 to 1957 seem to be highly correlated with changes in W/A. His conclusion is this: "Thus we have extracted a new *empirical* truth or 'law' in the proper operational sense; to wit, that a price rise can occur only if there is a rise in the Ratio, of average compensation to average productivity, or vice versa" (pp. 55–56).

The development of this "Law of the Price Level" occupies the first five chapters of this volume. In chapter 6 the price-level theorem is further elaborated for predictive purposes. By taking the value of about 2 for K and incorporating intelligent estimates for prospective changes in product per worker and the money wage, the forecaster can, the author believes, come up with accurate price-level predictions. Chapter 7, "The Wedding Ceremony: Price Level and Aggregate Output," is an interesting digression which cannot be summarized here. In chapters 8–10 the price-level thesis is contrasted with the quantity-theory approach to price-level determination. Weintraub argues strongly that monetary policy directed to price-level stabilization is utterly helpless to accomplish what it attempts. Tight money cannot operate immediately on the price level, since it cannot get directly at K, W, or A. But in the short run it does depress output and employment and indirectly relieves upward pressure on W and hence on W/A. Furthermore, by its output-depressing effects the Fed provokes future inflationary pressure because a slower rate of capital formation

entails a slower rise in average product per worker and, *ceteris paribus*, an upward push on W/A. As a solution, a government agency ". . . akin to the watchful eye of either the Anti-Trust Division in the Attorney General's office or else the Federal Trade Commission" is needed to make unions, Congress, and the public aware of potential wage-induced inflation (p. 90).

Chapters 11 and 12 develop brief statistical generalizations of the pattern of income distribution based upon historical (1929–57) ratios of rental, interest, and profit shares to employee compensation. In chapter 13 the "Final Price Level Generalization" is stated: Since K is about 2, we can seldom be far from correct by estimating that the price level will rise by about *twice* the increase in unit wage costs for the business sector as a whole. The final chapter relates Weintraub's price-livel model to the Harrod-Domar growth model.

This is a very ambitious work. The author is clearly anxious to get his message stated quickly and concisely, and in this he succeeds. There are, of course, questions of theory, method, and application that should, and probably will, receive attention when this book becomes more widely known. Nevertheless, in view of the recent avalanche of controversy on the respective roles of monetary and non-monetary factors in the inflationary process, the Weintraub thesis deserves a hearing. Monetary theorists of almost all varieties will find this book provoking in more ways than one. For example, the use of the KW/A relationship to explain the inflations of 1946–48 and 1950–51 somehow seems very unrealistic compared with the more familiar monetary explanation. But this book is worth reading and especially so for those who will disagree with all its major conclusions.

H. D. MALONEY

DePauw University

Public Finance

Government Finance: An Economic Analysis. By JOHN F. DUE. Rev. ed. Homewood, Ill.: Irwin, 1959. Pp. xxi+627. $6.95.

Professor Due's revision is an attempt to preserve the basic pattern of the original edition and to incorporate new materials. As he points out in the Preface, it is a general survey of government spending, taxing, and borrowing, with greater emphasis on economic effects than on historical detail.

In both editions more than half the volume is concerned with taxation. About a fifth of the revised edition is concerned with government spending, while the remaining portion deals with over-all aspects of government finance and fiscal policy. As with the first edition, the revision contains a substantial amount of comparative material on the Canadian system. Frequently, almost usually, the author begins his discussion with definitions, the prevailing economic reasoning on the topic, followed by summaries of appropriate empirical studies, and, finally, his summary and concluding remarks. There is balance in his choice of topics and in his handling of controversial issues. In some instances a fraction of a chapter has been shifted to a new position in the text, mainly with a view to improving logical sequence. The shifts do not alter significantly the arrangement of materials in the original edition.

In addition to bringing the tables, charts, and other factual materials up to date, two features of the revision warrant special mention. The first edition's

chapter on the governmental sector in the national income accounts has been condensed into part of a chapter, and a new chapter on governmental budgeting has been inserted. This desirable addition was prompted in considerable part by the recent works of Jesse Burkhead and Arthur Smithies. The other significant feature is a new chapter on highway finance. It includes a discussion of the background of our highway difficulties, the recent toll-road episode, the unavoidable shift from local to greater dependence on federal financing of highways, and the current federal highway program. Another feature of the revision is that the brief discussion of income taxation at the state and local level has been expanded into a separate, short chapter.

Some users will, I suspect, be disappointed that Due failed to liven up the last section of his revision with current materials on the problem of maintaining high levels of employment and relative price stability. His treatment of the subject during the great depression, the war, and early postwar period is satisfactory. But, perhaps deliberately, he gives scant attention to the most heated and most significant controversy in the field of fiscal policy since the great debates over the Employment Act of 1946.

This is a minor criticism. The revision is what it purports to be: a general survey of the field of public finance. The author has achieved his goal of emphasizing principles and economic effects and has been careful not to administer an overdose of complicated, interest-killing, diagrammatic illustrations. The revision is an improved version of his widely used original edition.

W. N. Peach

University of Oklahoma

Federal Budget and Fiscal Policy, 1789–1958. By Lewis H. Kimmel. Washington, D.C.: Brookings Institution, 1959. Pp. x+337. $5.00.

Do you believe that debt, public or private, is not sinful; that budgets should be less than balanced during depressions; that governments should carry the role of maintaining the economy on an even keel; that generous public expenditures are at least as useful and productive as private expenditures? Most Americans would now answer, "I do." But it was not always so. The Puritanical ethic was negative on all these matters, and it held its grip on American thought with unabated firmness for a century and a half of our history.

Dr. Kimmel's book is a history of American thought in this area, starting with Ben Franklin and Alexander Hamilton and coming down to Eisenhower's budget for 1960. He covers principal works on economics, pronouncements and policies of statesmen, political platforms, congressional debates, and even such works of literature as the essays of Thoreau and Emerson. He includes not only American but British works that have had an influence here. Some 125 names of authors and spokesmen whose views are summarized and/or quoted are listed on the outer cover. All this is well documented to provide a valuable source book of the history of financial literature and views in this area.

The drama, of course, is provided by the abrupt change that took place in the prevailing attitude toward debt, budgets, and public expenditures during and because of the great depression and World War II. Before these eras and events there were extraordinarily few who seriously questioned the "conventional wisdom." Among the dissenters or partial dissenters were Thomas Malthus, Simon Patten, and (as to the role of government) the American economists of the late

nineteenth century who studied abroad, especially in Germany—Ely, Adams, Seligman, and others. How little dissenters succeeded in altering the mores is indicated by the famous slogan of President Coolidge, "I am for economy. After that I am for more economy," and the Democrats' platform pledge of 1932 to reduce Hoover's public outlay by not less than one-fourth.

The revolution was forced by the conditions of the 1930's, and action preceded theory during much of this era. Finally, the work of John Maynard Keynes and its adaptations supplied the rationale for the practices already in vogue but theretofore accepted apologetically. Later the Committee for Economic Development was largely instrumental in selling the new doctrine to businessmen.

The author's work is largely on the objective level, but he makes no secret of the fact that he regards the revolution without many reservations as salutary. Scant attention is paid to the contention that we are in for secular inflation and the grave difficulties of applying fiscal policy to cope with it. New eras may still have a way of outmoding accepted doctrine. But this does not detract seriously from the valuable broad picture of the development of American ideas in a vital area which the author supplies.

HAROLD M. GROVES

University of Wisconsin

Public Finance. Edited by RICHARD W. LINDHOLM. New York: Pitman, 1959. Pp. xviii+798. $7.25.

This volume is unique among public finance texts and economics texts generally by virtue of the fact that it was written by a total of sixty-six authors (a built-in guarantee of numerous adoptions!). These authors are typically located in small colleges, only five being from schools giving graduate work in economics leading to the Ph.D. degree. Only one-third of the authors are full professors.

The organization is typical, the early chapters being devoted to government expenditures, the second group to tax questions, and the last to borrowing and fiscal policy. Much more attention is given than in the usual text to expenditures for particular purposes, social security expenditures and revenues, fiscal administration, and formulation of tax policy.

The volume seeks to balance the descriptive and analytical approaches to public finance, but the former is dominant. As usual in texts, sales taxation does not receive attention co-ordinate with its revenue importance. The authors are, for the most part, cognizant of recent deevlopments in literature and practice, and few outright errors are made, although the analysis is at times superficial and the footnote references fail to note some of the major works on various topics. The approach stresses conflicting points of view rather than the author's opinions.

The general results are more satisfactory than would be expected with so many authors; the editors obviously did substantial systematization. However, the quality is uneven. The chapter on the principles of taxation is weak, and so is the evaluation of farm and transportation programs. The incidence chapter makes some elementary errors in the use of economic analysis. Most of the chapters are competent; very few are outstanding. Despite obvious attempts at integration, there remains considerable duplication. This feature, plus questionable organization of the expenditure and fiscal policy section, which creates unnecessary repetition, cause the book to be unmanageably long for a semester

course. Some chapters are concise, but others are wordy and laborious. Some suffer from clumsy writing or inept choice of words. Note, for example, on page 328, "As is also true in demand, a tax may be shifted through a change in price"; on page 437, "The use tax is a way in which the Supreme Court has decided it is legal to tax interstate trade"; and the remarkable statement on page 505, "A small railroad would be a large grocery store . . ."

On the whole, apart from its length, the book will probably serve as well as most existing texts for the introductory public finance course not stressing economic analysis. It is not distinguished, but it is not incompetent.

JOHN F. DUE

University of Illinois

The Theory of Public Finance: A Study in Public Economy. By RICHARD A. MUSGRAVE. New York: McGraw-Hill, 1959. Pp. xvii+628. $12.50.

In this work the welfare theoretical approach, the institutional approach of public finance management, and the economic aspects of public finance policies are related to one another. It not only attempts to integrate these three strands which have been developing in recent decades but also makes significant contributions to each of them.

I have great admiration for the intellectual accomplishment of this work and regard it as a big step toward, but not yet as the achievement of, a theory of public finance which meets all the requirements of our time.

Musgrave distinguishes three aspects of the public household which he calls the "Allocation, the Distribution, and the Stabilization Branches." The objectives pursued by each branch should be guided by norms which determine their expenditure and revenue policies. The main objective of the allocation branch is to allocate needed resources to the satisfaction of what Musgrave calls "public wants." They consist primarily of "social wants," which, in common with private wants, reflect the preferences of individuals. The only difference between social and private wants is that the private market system in some cases fails to deliver the "wanted" amount and kind of goods or services for one reason or other and in many of these cases government can adjust the allocation and bring about a more nearly perfect satisfaction of the preferences of individual consumers.

Musgrave recognizes, however, that not all government services are designed to meet individual consumer choices. If that were the case, the poor might not obtain a minimum of education or medical attention. He calls these purposes "merit wants." Musgrave suggests that the expenditures of the allocation branch should primarily be met in a way most similar to the manner in which the individuals pay prices for privately produced goods and services. Also, as in the private market, economy current revenue should finance current expenditures (including allowance for depreciation of capital assets). Thus he sees nothing objectionable in financing public capital formation by borrowing.

The distribution branch has the function of influencing the distribution of incomes by transfer payments in favor of people with inadequate income and by taxation which puts a lesser burden on people with inadequate incomes.

The stabilization branch contributes to an adjustment of aggregate demand by modification of expenditures, revenues, and debt management, in order to promote full employment and prevent inflationary excess demand.

Within this frame of reference, Musgrave treats such problems as those involved in the determination of expenditure programs, principles of tax policy, and effects of taxes on the distribution of income, on incentives, on prices, on consumption and investment. Also the problems of a compensatory fiscal policy are treated in great detail. The author adheres in this respect to a basically Keynesian approach, but he has digested the criticism of Keynes advanced during the last twenty-five years. There is a very commendable absence of dogmaticism and an occasional injection of common sense into a generally rather abstract treatise.

I have two major criticisms of Musgrave's approach. One relates to the particular welfare theory which is presented as the major basis on which the theory of public finance rests. He treats very extensively the individual-benefit theory and alternative voting procedures which most adequately could express individual preferences for government services. In contrast, only much briefer (and rather vague) is the discussion of the principles for determining what the author calls the "merit wants." He actually dismisses merit wants as of little interest: ". . . it is proper for the economist to concentrate on the problem of social wants" (p. 89).

The introduction of the concept of "merit wants" indicates that Musgrave recognized the limited applicability of consumer preferences to government services, but he failed in drawing the full consequences from this recognition. There are certainly areas of government services where consumer preferences are the appropriate criterion for deciding on the allocation of resources. If I understand the concept of merit wants, it has a wider application, not only to education and health services mentioned by Musgrave, but also to national security and other programs which at present are by far the largest part of all government expenditures. In the preoccupation with finding a common ground in consumers' choices for both private and public goods and services, this theory fails to develop a common approach to the decision-making process in public finance.

By playing down the importance of merit wants, the impression is created that consumers' preferences are the basic criterion for decisions on the allocation of resources for public needs and that a voting procedure should be developed for implementing this theory. In consequence, the following procedure is prescribed: "Each taxpayer must register his demand for each service. The government must solve for the equilibrium output for each social good and bill each citizen in accordance with his offer prices for these equilibrium outputs." Of course, those who may be stunned by this prescription will be consoled when they read a bit later: ". . . actually, all this does not have to be done anew in each budget period" (p. 77).

Even though Musgrave probably meant this prescription to be understood as an experiment of thought, I believe that even a theoretical model, abstract of reality as it must be, should be regarded as a tool for grasping the reality. This model makes the government decision-making process into a mere computer, registering and processing the individual expressions of preferences. That, I believe, is a misconstruction of the process of decision-making in a democracy or any other form of government.

I believe that the *public interest* is a more comprehensive and more operational concept to be used in a theory of public finance. It includes satisfaction of individual needs in those areas where government services are designed to meet individual needs which cannot be adequately met by the market mechanism. But the public interest also serves as a criterion for the satisfaction of "merit"

wants, for redistribution, and promotion of economic growth and stability. It takes account of the role of leaders in developing a specific image of the public interest as well as the articulation of individual preferences by various groups. It would take account of the fact that decisions in a democracy are made in part not only for the benefit of the living but also for future generations. It would recognize that participation by the individual in the process of government implies an effort to reconcile his purely personal preferences with a concern for the general interest.

This statement by no means negates the fact that the individual's concept of good government is largely influenced by his own interest. But to assume that the individual voter expresses nothing but his concern for his own personal benefits is a perversion of the fundamental nature of the democratic process and negates what may be called the "life hypothesis" of democracy. No group can pursue for long its own particular interest in a democracy without justifying it in terms of the general interest. (This is a fact currently experienced by the farm interests.) I do not question the logic of Musgrave's approach, but I believe that a broadened concept of public welfare rather than individual preferences could lead to a theoretical model of greater practical applicability.

My second criticism relates to the institutional interpretation of the three budget branches. I find Musgrave's distinction between the allocation function, the distribution function, and the stabilization function very useful as long as this division is meant to characterize three basic purposes of government. I question the desirability of organizing three separate branches of expenditures, each with its own resources and principles of financing. The category of "merit wants" demonstrates in Musgrave's own presentation the impossibility of a clear-cut distinction between allocation and redistribution functions of expenditures. Also I see no reason why progressive taxes designed to serve purposes of distribution should be limited to those financing transfer expenditures and would not also contribute to the financing of "social wants." Musgrave qualifies the division of the three branches in several respects. I think his theory would gain if he would only speak of three "purposes" rather than of three "branches" of the government household.

GERHARD COLM

Washington, D.C.

Readings in the Economics of Taxation. Edited by RICHARD A. MUSGRAVE and CARL S. SHOUP. Homewood, Ill.: Irwin, 1959. Pp. ix+581. $6.50.

Readings in the Economics of Taxation is Volume IX in the American Economic Association's "Series of Republished Articles on Economics." The editors were also the selection committee.

In the Foreword the editors state some of the criteria by which they limited their selections. Primarily, they wished to include only articles on the theory of taxation. In this decision they were not unmindful of two other recent books of readings: ***Readings in Fiscal Policy*** in the American Economic Association series, and ***Classics in the Theory of Public Finance***, published by the International Economic Association. They sought articles whose value had stood the test of time and which made contributions to general economic theory. Additional tests were usefulness in current research and teaching, relative non-availability, and

publication prior to 1953. Because of lack of funds for extensive translation, all but two articles were originally published in the English language.

The value of the volume as a research tool is greatly increased by an extensive bibliography of articles in English and other languages prepared by five co-operating foreign scholars.

The thirty-two articles included in the book are grouped under two main divisions: "Equity and Welfare" and "Incidence and Incentive Effects." Each of these divisions has appropriate subsections.

With but two notable exceptions, all articles appeared originally after 1896. The earliest is "Of Monopoly and of the Influence of Taxation on Commodities Produced under a Monopoly," by Augustin Cournot (1838). The other, by Fleeming Jenkins, published in the 1871–72 session of the *Proceedings* of the Royal Society of Edinburgh, is "On the Principles Which Regulate the Incidence of Taxes." An article by Knut Wicksell (1896) and one by F. Y. Edgeworth (1897) complete the subsection on the general analysis of incidence. These four articles plus twelve additional on special aspects of incidence account for half the articles which make up the book. The remaining articles on incidence are grouped into the following subsections: "Concepts and Methodology," "Taxes on Products and Sales," "Taxes on Land and Property."

The six selections on equity run from S. J. Chapman (1913) to J. M. Buchanan (1950). Four articles on welfare cover the period from C. F. Bickerdike (1906) to I. M. D. Little (1951). The final section on incentive effects contains six articles, from Enrico Barone (1899) to Gershon Cooper (1952).

A book of readings presents a challenge to a reviewer to raise the "Why this?" and "Why not that?" questions. The Bibliography which is included affords ample opportunity to do this. Within the space and financial limitations placed upon the selection committee, this reviewer feels that an excellent representation of fundamental theoretical work has been assembled. The volume will make a meaty introduction to general theory as well as to taxation theory for the beginning graduate student. Advanced undergraduates should be exposed to some selections in areas in which their own text is inadequate.

WILLIAM E. DUNKMAN

University of Rochester

Taxation of Agricultural Lands in Underdeveloped Economies. By HASKELL P. WALD. Cambridge: Harvard University Press, 1959. Pp. xiii+231. $4.50.

The compatibility of tax systems with economic growth in underdeveloped economies is of primary concern throughout this study. Particular attention is also given to the importance of adapting tax measures to local customs and attitudes, the educational level of the people, the accounting practices of the community, and the administrative qualifications of government personnel.

The first part of the book contains a description and explanation of the major types of land taxes. Estimates are presented as to the relationship between land-tax revenues and total tax receipts in selected countries. Countries which have the less conventional types of land taxes have obtained relatively higher yields in recent years than have countries with land taxes based on annual rental value or capital value. China and Korea, with their systems of collections in kind, are cited as countries that have a better than average revenue performance. The

author quickly points out, however, that the full revenue-producing potential of well-designed, expertly administered land taxes that are assessed according to scientific land classification procedures have yet to be tested in the underdeveloped countries.

Major policy guides are discussed in the second part of the book. A re-examination of the classical defenses of land as a basis of taxation is followed by an analysis of the viewpoint of equity, economic effects, and administrative features of various types of land taxes. The author does not accept the common arguments in favor of the unique fitness of land as an object of taxation but believes that the appropriateness of land taxes as revenue measures must be tested in each country against the same basic criteria that apply to all other taxes. A brief but well-rounded discussion of the shifting and capitalization of land taxes is appropriately considered in the analysis of the viewpoint of equity. With the possible exception of a few underpopulated and rapidly developing countries, where a heavy, discriminatory tax on agriculture might restrain growth in that sector in favor of more rapid growth elsewhere, the case for any signficant amount of intersectoral shifting is not persuasive for most types of land taxes. Capitalization is of little practical importance in many underdeveloped countries because of the paucity of land transfers except in the form of gifts or bequests.

In the analysis of the equity aspects of specific types of land taxes, net income was selected as the most appropriate distributional standard. The determinants of the relative equitableness of different taxes, however, were shown to be more closely allied to the practices adopted in the interest of administrative and fiscal expediency than to the formal structure of taxes.

The criteria selected for testing the economic effects of the tax base are (1) increased efficiency of production, (2) increased utilization of available resources, (3) desirable resource transfers, and (4) welfare objectives. The quality of the administrative personnel and the national attitude toward the tax system are singled out for special treatment in the discussion of efficient tax administration.

A basic design for more effective taxation of land in underdeveloped countries is presented in Part III of the book. Numerous suggestions are made, but special emphasis is given to the desirability of adopting a system of soil classification and rating according to indexes of productive capacity and relative income potential.

A careful reading of this book would be helpful to any person who is undertaking a study of land taxation in a particular underdeveloped country. It is well worth reading, moreover, by others who are interested in the general field of taxation.

H. Kenneth Allen

University of Illinois

BOOKS RECEIVED

BAUMOL, WILLIAM J. *Business Behavior, Value and Growth.* New York: Macmillan, 1959. Pp. xiv+164. $4.75.

This little book consists of two only loosely related sections, a set of chapters on static oligopoly theory, and another set on economic development theory.

BRY, GERHARD. *The Average Workweek as an Economic Indicator.* New York: National Bureau of Economic Research, 1959. Pp. ix+115. $2.00 (paper).

Among the findings in this study is the conclusion that turns in the workweek usually precede business-cycle turns by about 4 months.

COLE, DAVID M. *The Development of Banking in the District of Columbia.* New York: William-Frederick Press, 1959. Pp. xx+629. $10.00.

This detailed history analyzes the interrelations of banking developments with economic and political conditions in the District and compares them with trends in other parts of the country.

COMMERCE CLEARING HOUSE. *1960 U.S. Master Tax Guide.* Chicago: Commerce Clearing House, 1959. Pp. 448. $3.00 (paper).

The rules set forth in this comprehensive guide are based on the Internal Revenue Code as amended through 1959, plus the official rulings and regulations, and the decisions of the Tax Court and other federal courts.

COMMITTEE ON PRINCIPLES OF ECONOMICS. *Principles of Economics.* New York: Pitman, 1959. Pp. xx+873.

Sixty-seven teachers co-operated to produce the 31 chapters in this elementary textbook.

CONFERENCES ON COMPARATIVE ECONOMIC GROWTH AND STRUCTURE. *The Comparative Study of Economic Growth and Structure.* New York: National Bureau of Economic Research, 1959. Pp. 201. $3.00 (paper).

Part I of this volume presents an exploratory report by Raymond W. Goldsmith. Part II consists of eleven supplementary memoranda contributed by a dozen authors.

CONWAY, B., GIBBONS, J., and WATTS, D. E. *Business Experience with Electronic Computers.* New York: Controllers Institute Research Foundation, 1959. Pp. 191.

This study is of special value to those executives who have been assigned responsibility for the planning, supervision, and control of the electronics program in a business enterprise.

FRIEDMAN, MILTON. *The Demand for Money: Some Theoretical and Empirical Results*. New York: National Bureau of Economic Research, 1959. Pp. 25. $0.75 (paper).

This paper is part of a broader study to be published by the National Bureau in the near future.

GREENBERG, JACK. *Race Relations and American Law*. New York: Columbia University Press, 1959. Pp. viii+481. $10.00.

This appears to be the only up-to-date treatise on the law of race relations in the United States.

HAZLITT, HENRY. *The Failure of the "New Economics": An Analysis of the Keynesian Fallacies*. Princeton, N.J.: Van Nostrand, 1959. Pp. xii+458. $7.50.

The author subjects Keynes's *General Theory* to a critical analysis, chapter by chapter, and challenges every leading tenet of the celebrated work.

HEIGES, P. M., SCHNEIDER, A. E., and HUFFMAN, H. *General Record Keeping*. 4th ed. New York: Gregg Publishing Division McGraw-Hill, 1959. Pp. xi+369. $3.96.

The primary purpose of this secondary-school text is instruction in the business and record-keeping activities of both consumers and businessmen. A new workbook to accompany this fourth edition of the textbook is also available.

HOOD, W. C. *Financing of Economic Activity in Canada*. Ottawa, Canada: Royal Commission on Canada's Economic Prospects, 1959. Pp. xv+700.

This valuable study on the capital market, the national transactions accounts and the financing of economic activity in the postwar period, the financial institutions involved, and some problems of finance in the consumer and business sectors contains a wealth of information on Canadian developments and interesting comparisons with trends in the United States.

KETCHUM, M. D., and KENDAL, L. T. (eds.). *Conference on Savings and Residential Financing: 1959 Proceedings*. Chicago: U.S. Savings and Loan League, 1959. Pp. 191 (paper).

These proceedings will be of interest to all those who are concerned with the problems of residential capital formation.

MACDONALD, PHILIP. *Practical Exporting and Importing*. 2d ed. New York: Ronald, 1959. Pp. ix+550. $6.50.

Developments since the first edition (1949) of this practical treatise are reflected in the revised edition, which consistently treats exporting and operations from the commercial point of view.

MASON, P., DAVIDSON, S., and SCHINDLER, J. S. *Fundamentals of Accounting*. 4th ed. New York: Holt, 1959. Pp. xi+910. $7.50.

Particular attention is given to managerial accounting in this new edition, which has been carefully revised throughout and brought to date.

NATIONAL PLANNING ASSOCIATION STAFF. *Long-Range Projections for Economic Growth: The American Economy in 1970.* Washington, D.C.: National Planning Association, 1959. Pp. viii+96. $2.00 (paper).

In the judgment of the authors, projection implies an average rate of growth of 4.2 per cent a year in the United States gross national product to a 1970 value of about $790 billion as measured in 1958 prices.

ROBINSON, M. A., MORTON, H. C., and CALDERWOOD, J. D. *An Introduction to Economic Reasoning.* Rev. ed. Washington, D.C.: Brookings Institution, 1959. Pp. xi+335. $3.00.

The purpose of this revised edition is to show the student how to examine an economic question rather than to present a full review of economics.

SCOTT, W. E., KANE, F., KIRK, J. G., and BUCKLEY. H. B. *Everyday Consumer Business.* Englewood Cliffs, N.J.: Prentice-Hall, 1959. Pp. ix+420. $3.76.

This new secondary-school text introduces the student to the buying and financial problems of citizenship.

SHACKLE, G. L. S. *Economics for Pleasure.* New York: Cambridge University Press, 1959. Pp. ix+268. $3.95.

Avoiding the use of mathematics and diagrams, the author lays bare the essence of economics in forty short chapters.

STAFF OF THE REAL ESTATE RESEARCH PROGRAM. *Industrial Location Bibliography.* Los Angeles: Graduate School of Business Administration, University of California, 1959. Pp. ii+82. $1.50 (paper).

The items listed, which have in the main been published in the postwar period, are grouped under twenty-six subject headings.

STERNBERG, FRITZ. *The Military and Industrial Revolution of Our Time.* New York: Praeger, 1959. Pp. xiv+359. $5.75.

The author holds that as a consequence of the greatest military revolution of all times, which is now taking place along with the second industrial revolution, our military, social, and political organizations must change.

UN DEPARTMENT OF ECONOMICS AND SOCIAL AFFAIRS. *The International Flow of Private Capital, 1956–1958.* New York: United Nations, 1959; distributed by Columbia University Press. Pp. 107. $0.75 (paper).

Direct investments, portfolio investments, and extensions of medium- and short-term credits are separately analyzed in this report.

VICKERS, DOUGLAS. *Studies in the Theory of Money, 1690–1776.* Philadelphia: Chilton Co., 1959. Pp. ix+313. $6.50.

The author contributes to a better understanding of the development of monetary theory in preclassical economic thought.

WALGENBACH, PAUL H. *Retail Credits and Collections*. Madison: University of Wisconsin, 1959. Pp. 172. (paper).

This new correspondence study course offered by the University Extension Division of the University of Wisconsin should be of great value to men and women employed in the credit departments of retail institutions throughout the country.

WEINTRAUB, SIDNEY. *A General Theory of the Price Level, Output, Income Distribution, and Economic Growth*. Philadelphia: Chilton Co., 1959. Pp. xi+123. $3.50.

The author is concerned with bringing a compatible form of price-level theory back into macro-economics, an aspect which Keynes tended to neglect.

WHETTEN, L. C. *Recent Proxy Contests: A Study in Management-Stockholder Relations*. Atlanta, Ga.: Bureau of Business and Economic Research, Georgia State College of Business Administration, 1959. Pp. vii+80 (paper).

Proxy contests during the years 1952–58 are analyzed as to goals sought, techniques used, and causes in this informative study.

CLYDE WILLIAM PHELPS

University of Southern California

ADDITIONS TO THE 1959 *MEMBERSHIP DIRECTORY*

In July, 1959, the American Finance Association published its 1959 *Membership Directory*. The following members joined the Association between November 6, 1959, and February 10, 1960. Addresses and occupations of new members may be secured from Professor George E. Hassett, Jr., Secretary-Treasurer, American Finance Association, New York University, New York.

Arlt, Carl T.
Arslanian, Lillian A.
Baird, W. W.
Banda, A. Frederic
Beard, T. R.
Bleich, S. Charles
Bucher, Jeffrey M.
Chao-Seng Ma, James
Clark, John J.
Coleman, Alan B.
Consler, Robert E.
Crosby, Edward
Cummings, Newell J.
Dain, Joseph, Jr.
Davis, Cortland W.
Dietz, Peter O.
Fenstermaker, Joseph V.
Flinn, B. W.
Foster, Ronald S.
Goss, Bernard
Greene, Lawrence M.
Haluska, Eugene L.
Hamer, Robert
Hamilton, Daniel C.
Hein, John
Helfert, Erich A.
Hermalin, Albert I.
*Howe, Ernest J.
Hull, Roger, Jr.
Johnson, W. F.
Jones, Reese D.
Krawczyk, Richard F.
Long, Richard W., Jr.
Marsigli, Marlys
Okuda, Kenji
O'Sullivan, Alan
Ott, David J.
Palyi, Melchior
Peko, Ivo A.
Poston, Charles F.
Radford, Gene A.
Radol, Rudolph C.
Roethle, John D.
Seldow, Leona
Snell, David A.
Symonds, Williston B.
Taylor, Zachary, Jr.
Wanderer, David M.

* Subscribing membership.